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A
HISTORY
OF THE
INTELLECTUAL DEVELOPMENT
OF
EUROPE.

BY

JOHN WILLIAM DRAPER, M.D., LL.D.,

Professor of Chemistry and Physiology in the University of New York; Author of a
"Treatise on Human Physiology," &c., &c.



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P R E F A C E.

AT the meeting of the British Association for the Advancement of Science, held at Oxford in 1860, I read an abstract of the physiological argument contained in this work respecting the mental progress of Europe, reserving the historical evidence for subsequent publication.

This volume contains that evidence. It is intended as the completion of my work on Human Physiology, in which man was treated of as an individual. In this he is considered in his social relation.

But the reader will also find, I think, that it is a history of the progress of ideas and opinions from a point of view heretofore almost entirely neglected. There are two methods of dealing with philosophical questions—the literary and the scientific. Many things which in a purely literary treatment of the subject remain in the background, spontaneously assume a more striking position when their scientific relations are considered. It is the latter method that I have used.

Social advancement is as completely under the control of natural law as is bodily growth. The life of an individual is a miniature of the life of a nation. These propositions it is the special object of this book to demonstrate.

No one, I believe, has hitherto undertaken the labor of arranging the evidence offered by the intellectual history of Europe in accordance with physiological principles, so as to illustrate the orderly progress of civilization, or collected the facts furnished by other branches of science with a view of enabling us to recognize clearly the conditions under which that progress takes place. This philosophical deficiency I have endeavored in the following pages to supply.

Seen thus through the medium of physiology, history presents a new aspect to us. We gain a more just and thorough appreciation of the thoughts and motives of men in successive ages of the world.

In the Preface to the second edition of my Physiology, published in 1858, it was mentioned that this work was at that time written. The

changes that have been since made in it have been chiefly with a view of condensing it. The discussion of several scientific questions, such as that of the origin of species, which have recently attracted public attention so strongly, has, however, remained untouched, the principles offered being the same as presented in the former work in 1856.

NEW YORK, 1861.

POSTSCRIPT.

OWING to the Civil War, the publication of this work has been postponed for nearly two years. I do not regret the delay. The American reader, for whom it is chiefly intended, will find on many of its pages suggestions arising from the history of other people and other institutions, which may be profitably considered in connection with the great events now transpiring. When a nation has reached one of the epochs of its life, and is preparing itself for another period of progress under new conditions, it is well for every thoughtful man interested in its prosperity to turn his eyes from the contentions of the present to the accomplished facts of the past, and to seek for a solution of existing difficulties in the record of what other people in former times have done.

NEW YORK, 1863.

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THE INTELLECTUAL DEVELOPMENT OF EUROPE.

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ON THE GOVERNMENT OF NATURE BY LAW.

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Plan of this Work.—The intellectual History of Greece.—Its Five characteristic Ages.—European intellectual History.

Grandeur of the Doctrine that the World is governed by Law.

I INTEND, in this work, to consider in what manner the advancement of Europe in civilization has taken place, to ascertain how far its progress has been fortuitous, and how far determined by primordial law. The subject proposed.

Does the procession of nations in time, like the erratic phantasm of a dream, go forward without reason or order? or, is there a predetermined, a solemn march, in which all must join, ever moving, ever resistlessly advancing, encountering and enduring an inevitable succession of events?

In a philosophical examination of the intellectual and political history of nations, an answer to these questions is to be found. But how difficult it is to master the mass of facts necessary to be collected, to handle so great an accumulation, to arrange it in the clearest point of view; how difficult it is to select correctly the representative men, to produce them in the proper scenes, and to conduct suc- Its difficulty and grandeur. cessfully so grand and complicated a drama as that of European life! Though in one sense the subject offers itself as a scientific problem, and in that manner alone I have to deal with it, in another it swells into a noble epic—the life of humanity, its warfare and repose, its object and its end.

Man is the archetype of society. Individual development is the model of social progress.

Some have asserted that human affairs are altogether determined by the voluntary action of men, some that the Providence of God directs us in every step, some that all events are fixed by Destiny. It is for us to ascertain how far each of these affirmations is true.

The life of individual man is of a mixed nature. In part he submits to the free-will impulses of himself and others, in part he is under the inexorable dominion of law. He insensibly changes his estimate of the relative power of each of these influences as he passes through successive stages. In the confidence of youth he imagines that very much is under his control, in the disappointment of old age very little. As time wears on, and the delusions of early imagination vanish away, he learns to correct his sanguine views, and prescribes a narrower boundary for the things he expects to obtain. The realities of life undeceive him at last, and there steals over the evening of his days an unwelcome conviction of the vanity of human hopes. The things he has secured are not the things he expected. He sees that a Supreme Power has been using him for unknown ends, that he was brought into the world without his own knowledge, and is departing from it against his own will.

Whoever has made the physical and intellectual history of individual man his study, will be prepared to admit in what a surprising manner it foreshadows social history. The equilibrium and movement of humanity are altogether physiological phenomena. Yet not without hesitation may such an opinion be frankly avowed, since it is offensive to the pride, and to many of the prejudices and interests of our age. An author who has been disposed to devote many years to the labor of illustrating this topic, has need of the earnest support of all who prize the truth; and, considering the extent and profundity of his subject, his work, at the best, must be very imperfect, requiring all the forbearance, and even the generosity of criticism.

In the intellectual infancy of a savage state Man transfers to Nature his conceptions of himself, and, considering that every thing he does is determined by his own pleasure, regards all passing events as depending on the arbitrary volition of a superior but invisible power. He gives to the world a constitution like his own. The tendency is necessarily to superstition. Whatever is strange, or powerful, or vast, impresses his imagination with dread. Such objects are only the outward manifestations of an indwelling spirit, and therefore worthy of his veneration.

After Reason, aided by Experience, has led him forth from these delusions as respects surrounding things, he still clings to his original ideas as respects objects far removed. In the distance and irresistible motions of the stars he finds arguments for the supernatural, and gives to

each of those shining bodies an abiding and controlling genius. The mental phase through which he is passing permits him to believe in the exercise of planetary influences on himself.

But as reason led him forth from fetichism, so in due time it again leads him forth from star-worship. Perhaps not without Fetichism displaced by star-worship. regret does he abandon the mythological forms he has created; for, long after he has ascertained that the planets are nothing more than shining points, without any perceptible influence on him, he still venerates the genii once supposed to vivify them, perhaps even he exalts them into immortal gods.

Philosophically speaking, he is exchanging by ascending degrees his primitive doctrine of arbitrary volition for the doctrine of law. As the fall of a stone, the flowing of a river, the movement of a shadow, the rustling of a leaf, have been traced to physical causes, to like causes at last are traced the revolutions of the stars. In events and scenes continually increasing in greatness and grandeur, he is detecting the dominion of law. The goblins, and genii, and gods who successively extorted his fear and veneration, who determined The idea of government by law. events by their fitful passions or whims, are at last displaced by the noble conception of one Almighty Being, who rules the universe according to reason, and therefore according to law.

In this manner the doctrine of government by law is extended, until at last it embraces all natural events. It was thus that, hardly two centuries ago, that doctrine gathered immense force from the discovery of Newton that Kepler's laws, under which the movements of Its application to the solar system. the planetary bodies are executed, issue as a mathematical necessity from a very simple material condition, and that the complicated motions of the solar system can not be other than what they are. Few of those who read in the beautiful geometry of the Principia the demonstration of this fact, saw the imposing philosophical consequences which must inevitably follow this scientific discovery. And now the investigation of the aspect of the skies in past ages, and all predictions of its future, rest essentially upon the principle that no arbitrary volition ever intervenes, the gigantic mechanism moving impassively in virtue of a mathematical law.

And so upon the earth, the more perfectly we understand the causes of present events, the more plainly are they seen to be the consequences of physical conditions, and therefore the results of law. To allude to one example out of many that might be considered, the winds, And to terrestrial events. how proverbially inconstant, who can tell whence they come or whither they go! If any thing bears the fitful character of arbitrary volition, surely it is these. But we deceive ourselves in imagining that atmospheric events are fortuitous. Where shall a line be drawn between that eternal trade-wind, which, originating in well-un-

derstood physical causes, sweeps, like the breath of destiny, slowly, and solemnly, and everlastingly over the Pacific Ocean, and the variable gusts into which it degenerates in more northerly and southerly regions—gusts which seem to come without any cause, and to pass away without leaving any trace? In what latitude is it that the domain of the physical ends, and that of the supernatural begins?

All mundane events are the results of the operation of law. Every movement in the skies or upon the earth proclaims to us that the universe is under government.

But if we admit that this is the case, from the mote that floats in the sunbeam to multiple stars revolving round each other, are we willing to carry our principles to their consequences, and recognize a like operation of law among living as among lifeless things, in the organic as well as the inorganic world? What testimony does physiology offer on this point?

Physiology, in its progress, has passed through the same phases as physics. Living beings have been considered as beyond the power of external influences, and, conspicuously among them, Man has been affirmed to be independent of the forces that rule the world in
And to the organic world. which he lives. Besides that immaterial principle, the soul, which distinguishes him from all his animated companions, and makes him a moral and responsible being, he has been feigned, like them, to possess another immaterial principle, the vital agent, which, in a way of its own, carries forward all the various operations in his economy.

But when it was discovered that the heart of man is constructed upon the recognized rules of hydraulics, and with its great tubes is furnished with common mechanical contrivances, valves; when it was discovered
Especially to man. that the eye has been arranged on the most refined principles of optics, its cornea, and humors, and lens properly converging the rays to form an image—its iris, like the diaphragm of a telescope or microscope, shutting out stray light, and regulating the quantity admitted; when it was discovered that the ear is furnished with the means of dealing with the three characteristics of sound—its tympanum for intensity, its cochlea for pitch, its semicircular canals for quality; when it was seen that the air brought into the great air-passages by the descent of the diaphragm, calling into play atmospheric pressure, is conveyed upon physical principles into the ultimate cells of the lungs, and thence into the blood, producing chemical changes throughout the system, disengaging heat, and permitting all the functions of organic life to go on; when these facts and very many others of a like kind were brought into prominence by modern physiology, it obviously became necessary to admit that animated beings do not constitute that exception once supposed, and that organic operations are the result of physical agencies.

If thus, in the recesses of the individual economy, these natural agents bear sway, must they not operate in the social economy too?

Has the great shadeless desert nothing to do with the habits of the nomade tribes who pitch their tents upon it—the fertile plain ^{In social as well as individual life.} no connection with flocks and pastoral life—the mountain fastnesses with the courage that has so often defended them—the sea with habits of adventure? Indeed, do not all our expectations of the stability of social institutions rest upon our belief in the stability of surrounding physical conditions? From the time of Bodin, who nearly three hundred years ago published his work “*De Republica*,” these principles have been well recognized: that the laws of Nature can not be subordinated to the will of Man, and that government must be adapted to climate. It was these things which led him to the conclusion that force is best resorted to for northern nations, reason for the middle, and superstition for the southern.

In the month of March the sun crosses the equator, dispensing his rays more abundantly over our northern hemisphere. Following in his train, a wave of verdure expands toward the pole. The luxuriance is in proportion to the local brilliancy. The animal world is ^{Effects of the seasons on animals and plants} also affected. Pressed forward, or solicited onward by the warmth, the birds of passage commence their annual migration, keeping pace with the developing vegetation beneath. As autumn comes on, this orderly advance of light and life is followed by an orderly retreat, and in its turn the southern hemisphere presents the same glorious phenomenon. Once every year does the life of the earth pulsate; now there is an abounding vitality, now a desolation. But what is the cause of all this? It is only mechanical. The earth's axis of rotation is inclined to the plane of her orbit of revolution round the sun.

Let that wonderful phenomenon and its explanation be a lesson to us; let it profoundly impress us with the importance of physical agents and physical laws. They intervene in the life and death of man personally and socially. External events become interwoven in our constitution; their periodicities create periodicities in us. Day and night are incorporated in our waking and sleeping; summer and winter compel us to exhibit cycles in our life.

They who have paid attention to the subject have long ago ascertained that the possibility of human existence on the ^{Individual existence depends on physical conditions.} earth depends on conditions altogether of a material kind. Since it is only within a narrow range of temperature that life can be maintained, it is needful that our planet should be at a definite mean distance from the source of light and heat, the sun; and that the form of her orbit should be so little eccentric as to approach closely to a circle. If her mass were larger or less than it is, the weight of all living and lifeless things on her surface would no longer be the same; but absolute weight is one of the primary elements of organic construction. A change in the time of her diurnal rotation, as affecting the length of

the day and night, must at once be followed by a corresponding modification of the periodicities of the nervous system of animals; a change in her orbital translation round the sun, as determining the duration of the year, would, in like manner, give rise to a marked effect. If the year were shorter, we should live faster and die sooner.

In the present economy of our globe, natural agents are relied upon as the means of regulation and of government. Through heat, the distribution and arrangement of the vegetable tribes are accomplished; through their mutual relations with the atmospheric air, plants and animals are interbalanced, and neither permitted to obtain a superiority. Considering the magnitude of this condition, and its necessity to general life, it might seem worthy of incessant Divine intervention, yet it is in fact accomplished automatically.

Animal and vegetable life interbalanced by material conditions.

Of past organic history the same remark may be made. The condensation of carbon from the air, and its inclusion in the strata, constitute the chief epoch in the organic life of the earth, giving a possibility for the appearance of the hot-blooded and more intellectual animal tribes. That great event was occasioned by the influence of the rays of the sun. And as such influences have thus been connected with the appearance of organisms, so likewise have they been concerned in the removals. Of the myriads of species which have become extinct, doubtless every one has passed away through the advent of material conditions incompatible with its continuance. Even now, a fall of half a dozen degrees in the mean temperature of any latitude would occasion the vanishing away of the forms of warmer climates, and the advent of those of the colder. An obscuration of the rays of the sun for a few years would compel a redistribution of plants and animals all over the earth; many would totally disappear, and every where new-comers would be seen.

And also appearances and extinctions determined.

The permanence of organic forms is altogether dependent on the invariability of the material conditions under which they live. Any variation therein, no matter how insignificant it might be, would be forthwith followed by a corresponding variation in the form. The present invariability of the world of organization is the direct consequence of the physical equilibrium, and so it will continue as long as the mean temperature, the annual supply of light, the composition of the air, the distribution of water, oceanic and atmospheric currents, and other such agencies remain unaltered; but if any one of these, or of a hundred other incidents that might be mentioned, should suffer modification, in an instant the fanciful doctrine of the immutability of species would be brought to its true value. The organic world appears to be in repose, because natural influences have reached an equilibrium. A marble may remain forever motionless

Permanence of organisms due to immobility of external conditions.

upon a level table; but let the surface be a little inclined, and the marble will quickly run off. What should we say of him who, contemplating it in its state of rest, asserted that it was impossible for it ever to move?

They who can see no difference between the race-horse and the Shetland pony, the bantam and the Shanghai fowl, the greyhound and the poodle dog, who altogether deny that impressions can be made on species, and see in the long succession of extinct forms, the ancient existence of which they must acknowledge, the evidences of a continuous and creative intervention, forget that mundane effects observe definite sequences, event following event in the necessity of the case, and thus constituting a chain, each link of which hangs on a preceding, and holds a succeeding one. Physical influences thus following one another, and bearing to each other the inter-relation of cause and effect, stand in their totality to the whole organic world as causes, it representing the effect, and the order of succession existing among them is perpetuated or embodied in it. Thus, in those ancient times to which we have referred, the sunlight acting on the leaves of plants disturbed the chemical constitution of the atmosphere, gave rise to the accumulation of a more energetic element therein, diminished the mechanical pressure, and changed the rate of evaporation from the sea, a series of events following one another so necessarily that we foresee their order, and, in their turn, making an impression on the vegetable and animal economy. The natural influences, thus varying in an orderly way, controlled botanical events, and made them change correspondingly. The orderly procedure of the one must be imitated in the orderly procedure of the other. And the same holds good in the animal kingdom; the recognized variation in the material conditions is copied in the organic effects, in vigor of motion, energy of life, intellectual power.

Orderly sequence of conditions is followed by orderly organic changes.

When, therefore, we notice such orderly successions, we must not at once assign them to a direct intervention, the issue of wise predeterminations of a voluntary agent; we must first satisfy ourselves how far they are dependent upon mundane or material conditions, occurring in a definite and necessary series, ever bearing in mind the important principle that an orderly sequence of inorganic events necessarily involves an orderly and corresponding progression of organic life.

To this doctrine of the control of physical agencies over organic forms I acknowledge no exceptions, not even in the case of man. The varied aspects he presents in different countries are the necessary consequences of those influences.

Universal control of physical agents over organisms.

He who advocates the doctrine of the unity of the human race is plainly forced to the admission of the absolute control of such agents over the organization of man, since the originally-created type has been

brought to exhibit very different aspects in different parts of the world, apparently in accordance with the climate and other purely material circumstances. To those circumstances it is scarcely necessary to add *The case of man.* manner of life, for that itself arises from them. The doctrine of unity demands as its essential postulate an admission of the paramount control of physical agents over the human aspect and organization, else how could it be that, proceeding from the same stock, all shades of complexion in the skin, and variety in the form of the skull should have arisen? Experience assures us that these are changes assumed only by slow degrees, and not with abruptness; they come as a cumulative effect. They plainly enforce the doctrine that national type is not to be regarded as a definite or final thing, a seeming immobility in this particular being due to the attainment of a correspondence with the conditions to which the type is exposed. Let those conditions be changed, and it begins forthwith to change too. I repeat it, therefore, that he who receives the doctrine of the unity of the human race, must also accept, in view of the present state of humanity on various parts of the surface of our planet, its necessary postulate, the complete control of physical agents, whether natural, or arising artificially from the arts of civilization and the secular progress of nations toward a correspondence with the conditions to which they are exposed.

To the same conclusion also must he be brought who advocates the origin of different races from different centres. It comes to the same thing, whichever of those doctrines we adopt. Either brings us to the admission of the transitory nature of typical forms, to their transmutations and extinctions.

Variations in the aspect of men are best seen when an examination is *Human variations.* made of nations arranged in a northerly and southerly direction; the result is such as would ensue to an emigrant passing slowly along a meridional track, but the case would be quite different if the movement was along a parallel of latitude. In this latter direction the variations of climate are far less marked, and depend much more on geographical than on astronomical causes. In emigrations of this kind there is never that rapid change of aspect, complexion, and intellectual power which must occur in the other. Thus, though the mean temperature of Europe increases from Poland to France, chiefly through the influence of the great Atlantic current transferring heat from the Gulf of Mexico and tropical ocean, that rise is far less than would be encountered on passing through the same distance to the south. By the arts of civilization man can much more easily avoid the difficulties arising from variations along a parallel of latitude than those upon a meridian, for the simple reason that in that case those variations are less.

But it is not only complexion, development of the brain, and, therefore, intellectual power, which are thus affected. With difference of

climate there must be differences of manners and customs, that is, differences in the modes of civilization. These are facts which deserve our most serious attention, since such differences are inevitably connected with political results. If homogeneousness is an element of strength, an empire that lies east and west must be more powerful than one that lies north and south. I can not but think that this was no inconsiderable cause of the greatness and permanence of Rome, and that it lightened the task of the emperors, often hard enough, in government. There is a natural tendency to homogeneousness in the east and west direction, a tendency to diversity and antagonism in the north and south, and hence it is that government under the latter circumstances will always demand the highest grade of statesmanship.

The transitional forms an animal type is capable of producing on a passage north and south are much more numerous than those it can produce on a passage east and west. These, though they are truly transitional as respects the type from which they have proceeded, are permanent as regards the locality in which they occur, being, indeed, the incarnation of its physical influences. As long, therefore, as those influences remain without change will the form that has been produced last without any alteration. For such a permanent form in the case of man we may adopt the designation of an ethnical element.

An ethnical element is therefore necessarily of a dependent nature; its durability arises from its perfect correspondence with the conditions by which it is surrounded. Whatever can affect that correspondence will touch its life.

Such considerations carry us from individual man to groups of men or nations. There is a progress for races of men as well marked as the progress of one man. There are thoughts and actions appertaining to specific periods in the one case as in the other. Without difficulty we affirm of a given act that it appertains to a given period. We recognize the noisy sports of boyhood, the business application of maturity, the feeble garrulity of old age. We express our surprise when we witness actions unsuitable to the epoch of life. As it is in this respect in the individual, so it is in the nation. The march of individual existence shadows forth the march of race existence, being, indeed, its representative on a little scale.

Groups of men, or nations, are disturbed by the same accidents, or complete the same cycle as the individual. Some scarcely pass beyond infancy, some are destroyed on a sudden, some die of mere old age. In this confusion of events, it might seem altogether hopeless to disentangle the law which is guiding them all, and demonstrate it clearly. Of such groups, each may exhibit, at the same moment, an advance to a different stage, just as we see in the same family the young, the middle-aged, the old. It is thus that Europe

Their political result.

Nature of transitional forms.

Conditions of change in an ethnical element.

Progress of nations like that of individuals.

Communities, like families, exhibit members in different stages of advance.

shows in its different parts societies in very different states—here the restless civilization of France and England, there the contentment and inferiority of Lapland. This commingling might seem to render it difficult to ascertain the true movement of the whole continent, and still more so for distant and successive periods of time. In each nation, moreover, the contemporaneously different classes, the educated and illiterate, the idle and industrious, the rich and poor, the intelligent and superstitious, represent different contemporaneous stages of advancement. One may have made a great progress, another scarcely have advanced at all. How shall we ascertain the real state of the case? Which of these classes shall we regard as the truest and most perfect type?

Though difficult, this ascertainment is not impossible. The problem is to be dealt with in the same manner that we should estimate a family in which there are persons of every condition from infancy to old age. Each member of it tends to pursue a definite course, though some, cut off in an untimely manner, may not complete it. One may be enfeebled by accident, another by disease; but each, if his past and present circumstances be fully considered, will illustrate the nature of the general movement that all are making. To demonstrate that movement most satisfactorily, certain members of such a family suit our purpose better than others, because they more closely represent its type, or have advanced most completely in their career.

So, in a family of many nations, some are more mature, some less advanced, some die in early life, some are worn out by extreme old age; all show special peculiarities. There are distinctions among kinsmen, whether we consider them intellectually or corporeally. Every one, nevertheless, illustrates in his own degree the march that all are making, but some do it more, some less completely. The leading, the intellectual class, is hence always the true representative of a state. It has passed step by step through the lower stages, and has made the greatest advance.

In an individual, life is maintained only by the production and destruction of organic particles, no portion of the system being in a state of immobility, but each displaying incessant change. Death is, therefore, necessarily the condition of life, and the more energetic the function of a part—or, if we compare different animals with one another—the more active the mode of existence, correspondingly, the greater the waste and the more numerous the deaths of the interstitial constituents.

To the death of particles in the individual answers the death of persons in the nation, of which they are the integral constituents. In both cases, in a period of time quite inconsiderable, a total change is accomplished without the entire system, which is the sum of these separate parts, losing its identity. Each

The intellectual
class the true
representative
of a community.

Interstitial change
and death the
condition of individ-
ual life.

Particles in the in-
dividual answer
to persons in the
state.

particle or each person comes into existence, discharges an appropriate duty, and then passes away, perhaps unnoticed. The production, continuance, and death of an organic molecule in the person answers to the production, continuance, and death of a person in the nation. Nutrition and decay in one case are equivalent to well-being and transformation in the other.

In the same manner that the individual is liable to changes through the action of external agencies, and offers no resistance thereto, nor any indication of the possession of a physiological inertia, but submits at once to any impression, so likewise it is with aggregates of men constituting nations. A national type pursues its way physically and intellectually through changes and developments answering to those of the individual, and being represented by Infancy, Childhood, Youth, Manhood, Old Age, and Death respectively.

But this orderly process may be disturbed exteriorly or interiorly. If from its original seats a whole nation were transposed to some new abode, in which the climate, the seasons, the aspect of nature were altogether different, it would appear spontaneously in all its parts to commence a movement to come into harmony with the new conditions—a movement of a secular nature, and implying the consumption of many generations for its accomplishment. During such a period of transmutation there would, of course, be an increased waste of life, a risk, indeed, of total disappearance or national death; but the change once completed, the requisite correspondence once attained, things would go forward again in an orderly manner on the basis of the new modification that had been assumed. When the change to be accomplished is very profound, involving extensive anatomical alterations not merely in the appearance of the skin, but even in the structure of the skull, long periods of time are undoubtedly required, and many generations of individuals are consumed.

Or, by interior disturbance, particularly by blood admixture, with more rapidity may a national type be affected, the result plainly depending on the extent to which admixture has taken place. This is a disturbance capable of mathematical computation. If the blood admixture is only of limited amount, and transient in its application, its effect will sensibly disappear in no very great period of time, though never, perhaps, in absolute reality. This accords with the observation of philosophical historians, who agree in the conclusion that a small tribe intermingling with a larger one will only disturb it in a temporary manner, and, after the course of a few years, the effect will cease to be perceptible. Nevertheless, the influence must really continue much longer than is outwardly apparent; and the result is the same as when, in a liquid, a drop of some other kind is placed, and additional quantities of the first liquid then successively

Epochs in national
the same as in in-
dividual life.

Disturbance
through em-
igration.

And through
blood admix-
ture.

added. Though it might have been possible at first to detect the adulteration without trouble, it becomes every moment less and less possible to do so, and before long it can not be done at all. But the drop is as much present at last as it was at first: it is merely masked; its properties overpowered.

Considering in this manner the contamination of a numerous nation, a trifling amount of foreign blood admixture would appear to be indelible, and the disturbance, at any moment, capable of computation by the ascertained degree of dilution that has taken place. But it must not be forgotten that there is another agency at work, energetically tending to bring about homogeneousness: it is the influence of external physical conditions. The intrusive adulterating element possesses in itself no physiological inertia, but as quickly as may be is brought into correspondence with the new circumstances to which it is exposed, herein running in the same course as the element with which it had mingled had itself antecedently gone over.

National homogeneousness is thus obviously secured by the operation of two distinct agencies: the first, gradual but inevitable dilution; the second, motion to come into harmony with the external natural state. The two conspire in their effects.

We must therefore no longer regard nations or groups of men as offering a permanent picture. Human affairs must be looked upon as in continuous movement, not wandering in an arbitrary manner here and there, but proceeding in a perfectly definite course. Whatever may be the present state, it is altogether transient. All systems of civil life are therefore necessarily ephemeral. Time brings new external conditions; the manner of thought is modified; with thought, action. Institutions of all kinds must hence participate in this fleeting nature, and, though they may have allied themselves to political power, and gathered therefrom the means of coercion, their permanency is but little improved thereby; for, sooner or later, the population on whom they have been imposed, following the external variations, spontaneously outgrows them, and their ruin, though it may have been delayed, is none the less certain. For the permanency of any such system it is essentially necessary that it should include within its own organization a law of change, and not of change only, but change in the right direction—the direction in which the society interested is about to pass. It is in an oversight of this last essential condition that we find an explanation of the failure of so many such institutions. Too commonly do we believe that the affairs of men are determined by a spontaneous action or free will; we keep that overpowering influence which really controls them in the background. In individual life we also accept a like deception, living in the belief that every thing we do is determined by the volition of ourselves or of those

Secular variations
of nations.

Their institutions
must correspond-
ingly change.

around us, nor is it until the close of our days that we discern how great is the illusion, and that we have been swimming, playing, and struggling in a stream which, in spite of all our voluntary motions, has silently and resistlessly borne us to a predetermined shore.

In the foregoing pages I have been tracing analogies between the life of individuals and that of nations. There is yet one point more.

Nations, like individuals, die. Their birth presents an ethnical element; their death, which is the most solemn event that we can contemplate, may arise from interior or from external causes. The death of nations. Empires are only sand-hills in the hour-glass of Time; they crumble spontaneously away by the process of their own growth.

A nation, like a man, hides from itself the contemplation of its final day. It occupies itself with expedients for prolonging its present state. It frames laws and constitutions under the delusion that they will last, forgetting that the condition of life is change. Very able modern statesmen consider it to be the grand object of their art to keep things as they are, or rather as they were. But the human race is not at rest; and bands with which, for a moment, it may be restrained, break all the more violently the longer they hold. No man can stop the march of destiny.

Time, to the nation as to the individual, is nothing absolute; its duration depends on the rate of thought and feeling. For the same reason that to the child the year is actually longer than There is nothing absolute in time. to the adult, the life of a nation may be said to be no longer than the life of a person, considering the manner in which its affairs are moving. There is a variable velocity of existence, though the lapses of time may be equable.

The origin, existence, and death of nations depend thus on physical influences, which are themselves the result of immutable laws. Nations are only transitional forms. Nations are only transitional forms of humanity. They must undergo obliteration as do the transitional forms offered by the animal series. There is no more an immortality for them than there is an immobility for an embryo in any one of the manifold forms passed through in its progress of development.

The life of a nation thus flows in a regular sequence, determined by invariable law, and hence, in estimating different nations, we must not be deceived by the casual aspect they present. The philosophical comparison is made by considering their entire manner of career or cycle of progress, and not their momentary or transitory state. Their course is ever advancing, never retrograde. Though they may encounter disaster, their absolute course can never be retrograde; it is always onward, even if tending to dissolution. It is as with the individual, who is equally advancing in infancy, in maturity, in old age. Pascal was more than justified in his assertion that "the entire succession of men, through the whole course of

ages, must be regarded as one man, always living and incessantly learning." In both cases, the manner of advance, though it may sometimes be unexpected, can never be abrupt. At each stage events and ideas emerge which not only necessarily owe their origin to preceding events and ideas, but extend far into the future and influence it. As these are crowded together, or occur more widely apart, national life, like individual, shows a variable rapidity, depending upon the intensity of thought and action. But, no matter how great that energy may be, nor with what rapidity modifications may take place—since events are springing as consequences of preceding events, and ideas from preceding ideas—in the midst of the most violent intellectual oscillations, a discerning observer will never fail to detect that there exists a law of continuous variation of human opinions.

In the examination of the progress of Europe on which we now enter, it is, of course, to intellectual phenomena that we must, for the most part, refer; material aggrandizement and political power offering us less important though still valuable indications, and serving our purpose rather in a corroborative way. There are five intellectual manifestations to which we may resort—philosophy, science, literature, religion, government. Our obvious course is, first, to study the progress of that member of the European family, the eldest in point of advancement, and to endeavor to ascertain the characteristics of its mental unfolding. We may reasonably expect that the younger members of the family, more or less distinctly, will offer us illustrations of the same mode of advancement that we shall thus find for Greece; and that the whole continent, which is the sum of these different parts, will, in its secular progress, comport itself in a like way.

Of the early condition of Europe, since we have to consider it in its prehistoric times, our information must necessarily be imperfect. Perhaps, however, we may be disposed to accept that imperfection as a sufficient token of its true nature. Since history can offer us no aid, our guiding lights must be comparative theology and comparative philology. Proceeding from these times, we shall, in detail, examine the intellectual or philosophical movement first exhibited in Greece, endeavoring to ascertain its character at successive epochs, and thereby to judge of its complete nature.

Fortunately for our purpose, the information is here sufficient, both in amount and distinctness. It then remains to show that the mental movement of the whole continent is essentially of the same kind, though, as must necessarily be the case, it is spread over far longer periods of time. Our conclusions will constantly be found to gather incidental support and distinctness from illustrations presented by the aged populations of Asia, and the aborigines of Africa and America.

Variable rapidity
of national life.

Plan of this
work.

Selection among
European com-
munities.

Our investiga-
tion limited to
the intellectual,
and commenc-
ing with
Greece.

From thence
we pass to the
examination
of all Europe.

The intellectual progress of Europe being of a nature answering to that observed in the case of Greece, and this, in its turn, being like that of an individual, we may conveniently separate it into arbitrary periods, sufficiently distinct from one another, though imperceptibly merging into each other. To these successive periods I shall give the titles of, 1, the Age of Credulity; 2, the Age of Inquiry; 3, the Age of Faith; 4, the Age of Reason; 5, the Age of Decrepitude; and shall use these designations in the division of my subject in its several chapters.

The five ages of European life.

From the possibility of thus regarding the progress of a continent in definite and successive stages, answering respectively to the periods of individual life—infancy, childhood, youth, maturity, old age—we may gather an instructive lesson. It is the same that we have learned from inquiries respecting the origin, maintenance, distribution, and extinction of animals and plants, their balancing against each other; from the variations of aspect and form of an individual man as determined by climate; from his social state, whether in repose or motion; from the secular variations of his opinions, and the gradual dominion of reason over society: this lesson is, that the government of the world is accomplished by immutable law.

The world is ruled by law.

Such a conception commends itself to the intellect of man by its majestic grandeur. It makes him discern the eternal through the vanishing of present events and through the shadows of time. From the life, the pleasures, the sufferings of humanity, it points to the impassive; from our wishes, wants, and woes, to the inexorable. Leaving the individual beneath the eye of Providence, it shows society under the finger of law. And the laws of Nature never vary; in their application they never hesitate nor are wanting.

But in thus ascending to primordial laws, and asserting their immutability, universality, and paramount control in the government of this world, there is nothing inconsistent with the free action of man. The appearance of things depends altogether on the point of view we occupy. He who is immersed in the turmoil of a crowded city sees nothing but the acts of men, and, if he formed his opinion from his experience alone, must conclude that the course of events altogether depends on the uncertainties of human volition. But he who ascends to a sufficient elevation loses sight of the passing conflicts, and no longer hears the contentions. He discovers that the importance of individual action is diminishing, as the panorama beneath him is extending. And if he could attain to the truly philosophical, the general point of view, disengaging himself from all terrestrial influences and entanglements, rising high enough to see the whole globe at a glance, his acutest vision would fail to discover the slightest indication of man, his

And yet there is free-will for man.

free-will, or his works. In her resistless, onward sweep, in the clock-like precision of her daily and nightly revolution, in the well-known pictured forms of her continents and seas, now no longer dark and doubtful, but shedding forth a planetary light, well might he ask what had become of all the aspirations and anxieties, the pleasures and agony of life. As the voluntary vanished from his sight, and the irresistible remained, and each movement became more and more distinct, well might he incline to disbelieve his own experience, and to question whether the seat of so much undying glory could be the place of so much human uncertainty, whether beneath the vastness, energy, and immutable course of a moving world, there lay concealed the feebleness and imbecility of man. Yet it is none the less true that these contradictory conditions co-exist—Free-will and Fate, Uncertainty and Destiny, and all are watched by the sleepless eye of Providence. It is only the point of view that has changed, but on that how much has depended. A little nearer we gather the successive ascertainments of human inquiry, a little farther off we realize the panoramic vision of the Deity. Well has a Hindu philosopher remarked, that he who stands by the bank of a flowing stream sees, in their order, the various parts as they successively glide by, but he who is placed on an exalted station views, at a glance, the whole as a motionless silvery thread among the fields. To the one there is the accumulating experience and knowledge of man in time, to the other there is the instantaneous and unsuccessive knowledge of God.

Is there an object presented to us which does not bear the mark of ephemeral duration? As respects the tribes of life, they are scarcely worth a moment's thought, for the term of the great majority of them is so brief that we may say they are born and die before our eyes. If we examine them, not as individuals, but as races, the same conclusion holds good, only the scale is enlarged from a few days to a few centuries. If from living we turn to lifeless nature, we encounter again the evidence of brief continuance. The sea is unceasingly remoulding its shores; hard as they are, the mountains are constantly yielding to frost and to rain; here an extensive tract of country is elevated, there it is depressed. We fail to find any thing that is not undergoing change.

Then forms are in their nature transitory, law is everlasting. If from visible forms we turn to directing law, how vast is the difference. We pass from the finite, the momentary, the incidental, the conditioned, to the illimitable, the eternal, the necessary, the unshackled.

It is of law that I am to speak in this book. In a world composed of vanishing forms I am to vindicate the imperishability, the majesty of law, and to show how man proceeds in his social march, in obedience to it. I am to

Changeability of forms and unchangeability of law.

The object of this book is to assert the control of law in human affairs.

reader, perhaps in a reluctant path, from the outward phantasmagorial illusions which surround us, and so ostentatiously obtrude themselves on our attention, to something that lies in silence and strength behind. I am to draw his thoughts from the tangible to the invisible, from the limited to the universal, from the changeable to the invariable, from the transitory to the eternal; from the expedients and volitions so largely amusing the life of man, to the predestined and resistless issuing from the fiat of God.

CHAPTER II.

OF EUROPE: ITS TOPOGRAPHY AND ETHNOLOGY.

ITS PRIMITIVE MODES OF THOUGHT, AND THEIR PROGRESSIVE VARIATIONS, MANIFESTED IN THE GREEK AGE OF CREDULITY.

Description of Europe: its Topography, Meteorology, and secular geological Movements.—Their Effect on its Inhabitants.

Its Ethnology determined through its Vocabularies; it was peopled from Asia.

Comparative Theology of Greece; the Stage of Sorcery, the Anthropocentric Stage.—Becomes connected with false Geography and Astronomy.—Heaven, the Earth, the Under World.—Origin, continuous Variation and Progress of Greek Theology.—It issues in Ionic Philosophy.

Decline of Greek Theology, occasioned by the Advance of Geography and philosophical Criticism.—Secession of Poets, Philosophers, Historians.—Abortive public Attempts to sustain it.—Duration of its Decline.—Its Fall.

EUROPE is geographically a peninsula, and historically a dependency of Asia.

It is constructed on the western third of a vast mountain axis, which reaches in a broken and irregular course from the Sea of Japan ^{Description of Europe.} to the Bay of Biscay. On the flanks of this range peninsular slopes are directed toward the south, and extensive plateaus to the north. The culminating point in Europe is Mont Blanc, 16,000 feet above the level of the sea. The axis of elevation is not the axis of figure; the incline to the south is much shorter and steeper than that to the north. The boundless plains of Asia are prolonged through Germany and Holland. An army may pass from the Pacific to the Atlantic Ocean, a distance of more than six thousand miles, without encountering any elevation of more than a few hundred feet. The descent from Asia into Europe is indicated in a general manner by the mean elevation of the two continents above the level of the sea, that for Asia being 1132 feet, and for Europe 671. Through the avenue thus open to them, the Oriental hordes have again and again precipitated themselves on the ^{The great path-zone.} West. With an abundance of springs and head-waters, but without any stream capable of offering a serious obstacle, this track has

a temperature well suited to military movements. It coincides generally with the annual isothermal line of 50° , skirting the northern boundary beyond which the vine ceases to grow, and the limiting region beyond which the wild boar does not pass.

Constructed thus, Europe is not only easily accessible from Asia, a fact of no little moment in its ancient history, but it is also singularly accessible interiorly, or from one of its parts to another. Still more, its sea-line is so broken, it has so many intrusive gulfs and bays, that, its surface considered, its maritime coast is greater than that of any other continent. In this respect it contrasts strikingly with Africa. Europe has one mile of coast-line for every 156 square miles of surface, Africa has only one for every 623. This extensive maritime contact adds, of course, greatly to its interior as well as exterior accessibility.

The mean annual temperature of the European countries on the southern slope of the mountain axis is from 60° to 70° F., but of those to the north the heat gradually declines, until, at the extreme limit on the shores of Zembla, the ground is perpetually frozen. As on the other parts of the globe, the climate does not correspond to the latitude, but is disturbed by several causes, among which may be distinguished the great Atlantic current—the Gulf Stream coming from America—and the Sahara Desert. The latter gives to the south of Europe an unduly high heat, and the former to Ireland, England, and the entire west a genial temperature. Together they press into higher latitudes the annual isothermal lines. If in Europe there are no deserts, there are none of those impenetrable forests seen in tropical countries. From the westerly shores of Portugal, France, and Ireland, the humidity diminishes as we pass to the east, and, indeed, if we advance into Asia, disappears in the desert of Gobi. There are no vast homogeneous geographical areas as in Asia, and therefore no wide-spread uniformity in the races of men.

But not only is the temperature of the European continent elevated by the Gulf Stream and the southwest wind, its luxuriance of vegetation depends on them; for luxuriance of vegetation is determined, among other things, by the supply of rain. A profusion gives to South America its amazing forests, a want to Australia its shadeless trees, with their shrunk and pointed leaves. With the diminished moisture the green gardens of France are replaced in Gobi by ligneous plants covered with a gray down. Physical circumstances control the vegetable as well as the animal world.

The westerly countries of Europe, through the influence of the southwest wind, the Gulf Stream, and their mountain ranges, are supplied with abundant rains, and have a favorable mean annual temperature; but as we pass to the eastern confines the number of rainy days dimin-

ishes, the absolute annual quantity of rain and snow is less, and the mean annual temperature is lower. On the Atlantic face of the mountains of Norway it is perpetually raining: the annual depth of water is there 82 inches; but on the opposite side of those mountains it is only 21 inches. For similar reasons, Ireland is moist and green, and in Cornwall the laurel and camellia will bear the winter exposure.

There are six maximum points of rain—Norway, Scotland, South-western Ireland and England, Portugal, Northeastern Spain, Lombardy. They respectively correspond to mountains. In general, the amount of rain diminishes from the equator toward the poles; but it is greatly controlled by the disturbing influence of elevated ridges, which in many instances far more than compensate for the effects of latitude. The Alps exercise an influence over the meteorology of all Europe.

Not only do mountains thus determine the absolute quantity of rain, they also affect the number of rainy days in a year. The occurrence of a rainy season depends on the amount of moisture existing in the air, and hence its frequency is greater at the Atlantic sea-board than in the interior, where the wind arrives in a drier state, much of its moisture having been precipitated by the mountains forcing it to a great elevation. Thus, on the eastern coast of Ireland it rains 208 days The number of rainy days; in a year; in England, about 150; at Kazan, 90; and in Siberia only 60 days.

When the atmospheric temperature is sufficiently low, the condensed water descends under the form of snow. In general, the annual depth of snow and the number of snowy days increase toward the north. In Rome the snowy days are $1\frac{1}{2}$; in Venice, $5\frac{1}{2}$; in Paris, 12; in St. Petersburg, 171. and of snowy days. Whatever causes interfere with the distribution of heat must influence the precipitation of snow; among such are the Gulf Stream and local altitude. Hence, on the coast of Portugal, snow is of unfrequent occurrence; in Lisbon it never snowed from 1806 to 1811.

From such facts as that the difference between the summer and winter temperature increases toward the interior of the continent; that the amount of rain, greatest on the mountain axis, diminishes as we go north or south, and also as we pass from the west to the east, and in like manner the number of rainy days; but snowy days, and the duration of snow, in an opposite way; we may learn how full of physical contrasts Europe is, and how many climates it presents. It necessarily follows that it is full of modified men.

If we examine the maps of monthly isothermals, we observe how wonderfully those lines change, becoming convex to the north Vibrations of the isothermal lines. as summer approaches, and concave as the winter. They by no means observe a parallelism to the mean, but change their flexures, assuming new sinuosities. In their absolute transfer they move

with a variable velocity, and through spaces far from insignificant. The line of 50° F., which in January passes through Lisbon and the south of the Morea, in July has traveled to the north shore of Lapland, and incloses the White Sea. As in some grand musical instrument, the strings of which vibrate, the isothermal lines of Europe and Asia beat back and forth, but it takes a year for them to accomplish one pulsation.

All over the world physical circumstances control the human race. They make the Australian a savage; incapacitate the negro, who can never invent an alphabet or an arithmetic, and whose theology never passes beyond the stage of sorcery. They cause the Tartars to delight in a diet of milk, and the American Indian to abominate it. They make the dwarfish races of Europe instinctive miners and metallurgists. An artificial control over temperature by dwellings, warm for the winter and cool for the summer; variations of clothing to suit the season of the year, and especially the management of fire, have enabled man to maintain himself in all climates. The single invention of artificial light has extended the available term of his life; by giving the night to his use, it has, by the social intercourse it encourages, polished his manners and refined his tastes, perhaps as much as any thing else has aided in his intellectual progress. Indeed, these are among the primary conditions that have occasioned his civilization. Variety of natural conditions gives rise to different national types, artificial inventions occasion renewed modifications. Where there are many climates there will be many forms of men. Herein, as we shall in due season discover, lies the explanation of the energy of European life, and the development of its civilization.

Would any one deny the influence of rainy days on our industrial habits and on our mental condition even in a civilized state? With how much more force, then, must such meteorological incidents have acted on the ill-protected, ill-clad, and ill-housed barbarian! Would any one deny the increasing difficulty with which life is maintained as we pass from the southern peninsulas to the more rigorous climates of the north? There is a relationship between the mean annual heat of a locality and the instincts of its inhabitants for food. The Sicilian is satisfied with a light farinaceous repast and a few fruits; the Norwegian requires a strong diet of flesh; to the Laplander it is none the less acceptable if grease of the bear, or train oil, or the blubber of whales be added. Meteorology to no little extent influences the morals; the instinctive propensity to drunkenness is a function of the latitude. Food, houses, clothing, bear a certain relation to the isothermal lines.

For similar reasons, the inhabitants of Europe each year tend to more complete homogeneousness. Climate and meteorological differences are more and more perfectly equalized by artificial inventions; nor is it

alone a similarity of habits, but also a similarity of physiological constitution that is ensuing. The effect of such inventions is to equalize the influences to which men are exposed; they are brought more closely to the mean typical standard, and—especially is it to be remembered—with this closer approach to each other in conformation, comes a closer approach in feelings and habits, and even in the manner of thinking.

But, through artificial inventions, it tends to homogeneity in modern times.

On the southern slope of the mountain axis project the historic peninsulas, Greece, Italy, Spain. To the former we trace unmistakably the commencement of European civilization.

The Mediterranean peninsulas.

The first Greeks patriotically affirmed that their own climate was the best suited for man; beyond the mountains to the north there reigned a Cimmerian darkness, an everlasting winter. It was the realm of Boreas, the shivering tyrant. In the early ages man recognized cold as his mortal enemy. Physical inventions have enabled him to overcome it, and now he maintains a more difficult and doubtful struggle with heat.

Beyond these peninsulas, and bounding the continent on the south, is the Mediterranean, nearly two thousand miles in length, isolating Europe from Africa socially, but uniting them commercially. The Black Sea and that of Azof are dependencies of it. It has, conjointly with them, a shore-line of 13,000 miles, and exposes a surface of nearly a million and a quarter of square miles. It is subdivided into two basins, the eastern and western, the former being of high interest historically, since it is the scene of the dawn of European intelligence; the western is bounded by the Italian peninsula, Sicily, and the African promontory of Cape Bon on one side, and at the other has as its portal the Straits of Gibraltar. The temperature is ten or twelve degrees higher than the Atlantic, and, since much of the water is removed by evaporation, it is necessarily more saline than that ocean. Its color is green where shallow, blue where deep.

The Mediterranean Sea.

For countless centuries Asia has experienced a slow upward movement, not only affecting her own topography, but likewise that of her European dependency. There was a time when the great sandy desert of Gobi was the bed of a sea which communicated through the Caspian with the Baltic, as may be proved not only by existing geographical facts, but also from geological considerations. It is only necessary, for this purpose, to inspect the imperfect maps that have been published of the silurian and even tertiary periods. The vertical displacement of Europe, during and since the latter period, has indisputably been more than 2000 feet in many places. The effects of such movements on the flora and fauna of a region must, in the course of time, be very important, for an elevation of 350 feet is equal to one degree of cold in the mean annual temperature, or to sixty miles horizontally northward. Nor is this slow disturbance ended.

Secular geological movement of Europe and Asia, and its special consequences.

Again and again, in historic times, have its results operated fearfully on Europe, by forcibly precipitating the Asiatic nomades along the great path-zone; again and again, through such changes of level, have they been rendered waterless, and thus driven into a forced emigration. Some of their rivers, as the Oxus and Jaxartes, have, within the records of history, been dry for several years. To these topographical changes, rather than to political influences, we should impute many of the most celebrated tribal invasions. It has been the custom to refer these events to an excessive overpopulation periodically occurring in Central Asia, or to the ambition of warlike chieftains. Doubtless those regions are well adapted to human life, and hence liable to overpopulation, considering the pursuits man there follows, and doubtless there have been occasions on which those nations have been put in motion by their princes, but the modern historian can not too carefully bear in mind the laws which regulate the production of men, and also the body of evidence which proves that the crust of the earth is not motionless, but rising in one place and sinking in another. The grand invasions of Europe by Asiatic hordes have been much more violent and abrupt than would answer to a steady pressure resulting from overpopulation, and too extensive for mere warlike incitement; they answer more completely to the experience of some irresistible necessity arising from an insuperable physical cause, which could drive in hopeless despair from their homes the young and the old, the vigorous and feeble, with their cattle, and wagons, and flocks. Such a cause is the shifting of the soil and disturbance of the courses of water. The tribes compelled to migrate were forced along the path-zone, their track being, therefore, on a parallel of latitude, and not on a meridian; and hence, for the reasons set forth in the preceding chapter, their movements and journey of easier accomplishment.

These geological changes enter then as an element in human history, not only for Asia, of which the great inland sea has dwindled away to the Caspian, and lost its connection with the Baltic, but for Europe also. The traditions of ancient deluges, which are the primitive facts of Greek history, refer to such movements; perhaps the opening of the Thracian Bosphorus was one of them. In much later times we are perpetually meeting with incidents depending on geological disturbances; the caravan trade of Asia Minor was destroyed by changes of level and the accumulation of sands blown from the encroaching deserts; the Cimbri were impelled into Italy by the invasion of the sea on their possessions. There is not a shore in Europe which does not give similar evidence; the mouths of the Rhine, as they were in the Roman times, are obliterated; the eastern coast of England has been cut away for miles. In the Mediterranean the shore-line is altogether changed; towns, once on the coast, are far away inland; oth-

Note and extent of
these movements.

ers have sunk beneath the sea. Islands, like Rhodes, have risen from the bottom. The North Adriatic, once a deep gulf, has now become shallow; there are leaning towers and inclining temples that have sunk with the settling of the earth. On the opposite extremity of Europe, the Scandinavian peninsula furnishes an instance of slow secular motion, the northern part rising gradually above the sea at the rate of about four feet in a century. This elevation is observed through a space of many hundred miles, increasing toward the north. The southern extremity, on the contrary, experiences a slow depression.

These slow movements are nothing more than a continuation of what has been going on for numberless ages. Since the tertiary period two thirds of Europe have been lifted above the sea. The Norway coast has been elevated 600 feet, the Alps have been upheaved 2000 to 3000, the Apennines 1000 to 2000. The country between Mont Blanc and Vienna has been thus elevated since the adjacent seas were peopled with existing animals. So intimately are the interests and occupations of men connected with the soil, that it is impossible for changes to take place on the great scale in it without being promptly followed by an equivalent political result.

At the earliest period Europe presents us with a double population. An Indo-Germanic column had entered it from the east, and had separated into two portions the occupants it had encountered, driving one to the north, the other to the southwest. These primitive tribes betray, physiologically, a Mongolian origin; and there are indications of considerable weight that they themselves had been, Early inhabitants of Europe. in ancient times, intruders, who, issuing from their seats in Asia, had invaded and dislocated the proper autochthons of Europe. But, setting this aside, we have, as our starting-point, a barbarian population, believers in sorcery, and, in some places, undoubtedly cannibals, maintaining, in the central and northern parts of Europe, their existence with difficulty by reason of the severity of the climate. In the southern, more congenial conditions permitted a form of civilization to commence, of which the rude Cyclopean structures here and there met with, such as the ruins of Orchomenos, the lion gate of Mycenæ, the tunnel of Lake Copais, are perhaps the vestiges.

At what period this intrusive Indo-Germanic column made its attack can not be ascertained. The national vocabularies of Europe, to which we must resort for evidence, might lead us to infer that the condition of civilization of the conquering people was not very advanced. They were acquainted with the use of domestic Their social condition. animals, with farming implements, carts, and yokes; they were also possessed of boats, the rudder, oars, but were unacquainted with the movement of vessels by sails. These conclusions seem to be established by the facts that words equivalent to boat, rudder, oar, are common to

the languages of the offshoots of the stock, though located very widely asunder; but these for mast and sails are of special invention, and differ in adjacent nations.

In nearly all the Indo-Germanic tongues, the family names, father, mother, brother, sister, daughter, are the same respectively. A similar
Their civil state deduced from their vocabularies. equivalence may be observed in a great many familiar objects, house, door, town, path. It has been remarked, that while this holds good for terms of a peaceful nature, many of those connected with warfare and the chase are different in different languages. Such facts appear to prove that the Asiatic invaders followed a nomadic and pastoral life. Many of the terms connected with such an avocation are widely diffused. This is the case with plowing, grinding, weaving, cooking, baking, sewing, spinning; with such objects as corn, flesh, meat, vestment; with wild animals common to Europe and Asia, as the bear and the wolf. So, too, of words connected with social organization, despot, rex, queen. The numerals from 1 to 100 coincide in Sanscrit, Greek, Latin, Lithuanian, Gothic; but this is not the case with 1000, a fact which has led comparative philologists to the conclusion that, though at the time of the emigration a sufficient intellectual advance had been made to invent the decimal system, perhaps from counting upon the fingers, yet that it was very far from perfection. To the inhabitants of Central Asia the sea was altogether unknown; hence the branches of the emigrating column, as they diverged north and south, gave it different names. But, though unacquainted with the sea, they were familiar with salt, as is proved by the recurrence of its name. Nor is it in the vocabularies alone that these resemblances are remarked; the same is to be said of the grammar. M. Max Muller shows that in Sanscrit, Zend, Lithuanian, Doric, Slavonic, Latin, Gothic, the forms of the auxiliary verb *to be* are all varieties of one common type, and that "the coincidences between the language of the Veda and the dialect spoken at the present day by the Lithuanian recruit at Berlin are greater by far than between French and Italian, and that the essential forms of grammar had been fully framed and established before the first separation of the Aryan family took place."

But it should not be overlooked that such interesting deductions founded on language, its vocabularies and grammar, must not be pressed too closely. The state of civilization of the Indo-Germanic column, as thus ascertained, must needs have been inferior to that of the centre from which it issued forth. Such we observe to be the case in all migratory movements. It is not the more intellectual or civilized portions of a community which voluntarily participate therein, but those in whom the physical and animal character predominates. There may be a very rough offshoot from a very polished stock. Of course, the movement must have taken place at a period

chronologically remote, yet not so remote as might seem to be indicated by the state of civilization of the invaders, used as an indication of the state of civilization of the country from which they had come. In Asia, social advancement, as far back as we can see, has ever been very slow; but, at the first moment that we encounter the Hindu race historically or philologically, it is dealing with philosophical and theological questions of the highest order, and settling, to its own satisfaction, problems requiring a cultivated intellect even so much as to propose. All this implies that in its social advancement there must have already been consumed a very long period of time.

But what chiefly interests us is the relation which must have been necessarily maintained between the intrusive people and those whom they thus displaced, the commingling of the ideas of the one with those of the other, arising from their commingling of blood. It is because of this that we find coexisting in the pre-Hellenic times the sorcery of the Celt with the polytheism of the Hindu. There can be no doubt that many of the philosophical lineaments displayed by the early European mythology are not due to indigenous thought, but were derived from an Asiatic source.

Moreover, at the earliest historic times, notwithstanding the disturbance which must have lasted long after the successful and perhaps slow advance of the Asiatic column, things had come to a state of equilibrium or repose, not alone socially, but also physiologically. It takes a long time for the conqueror and conquered to settle together, without farther disturbance or question, into their relative positions; it takes a long time for the recollection of conflicts to die away. But far longer does it take for a race of invaders to come into unison with the climate of the countries they have seized, the system of man accommodating itself only through successive generations, and therefore very slowly, to new physical conditions. It takes long before the skin assumes its determinate hue, and the skull its destined form. A period amply sufficient for all such changes to be accomplished in Europe had transpired at the very dawn of history, and strands of population in conformity with meteorological and geographical influences, though of such origin as has been described, were already distributed upon it. A condition of ethnical equilibrium had been reached. Along each isothermal or climatic band were its correspondingly modified men, spending their lives in avocations dictated by surrounding circumstances. These strands of population were destined to be dislocated, and some of them to become extinct, by inventing or originating among themselves new and unsuitable artificial physical conditions.

Already Europe was preparing a repetition of those events of which Asia from time immemorial has been the scene. Already among the nations bordering on the Mediterranean, inhabitants of a pleasant cli-

mate, in which life could be easily maintained—where the isothermal of January is 41° F., and of July $73\frac{1}{2}^{\circ}$ F.—civilization was first phase of civilization commencing. There was an improving agriculture, an increasing commerce, and, the necessary consequence thereof, germs of art, the accumulation of wealth. The southern peninsulas were offering to the warlike chieftains of middle Europe a tempting prize. So it had been in Asia.

Under such influences Europe may be considered as emerging from and first religious opinions. the barbarian state. It had lost all recollection of its ancient relations with India, which have only been disclosed to us by a study of the vocabularies and grammar of its diverse tongues. Upon its indigenous sorcery an Oriental star-worship had been ingrafted, the legends of which had lost their significance. What had at first been feigned of the heavenly bodies had now assumed an air of personality, and had become attributed to heroes and gods.

The negro under the equinoctial line, the dwarfish Laplander beyond the Arctic Circle—man every where, in his barbarous state, is a believer in sorcery, witchcraft, enchantments; he is fascinated by the incomprehensible. Any unexpected sound or sudden motion he refers to invisible beings. Sleep and dreams, in which one third of his life is spent, assure him that there is a spiritual world. He multiplies these unrealities; he gives to every grotto a genius, to every tree, spring, river, mountain, a divinity.

Comparative theology, which depends on the law of continuous variation of human thought, and is indeed one of its expressions, universally proves that, the moment man adopts the idea of an existence of invisible Localization of the invisible. beings, he recognizes the necessity of places for their residence, all nations assigning them habitations beyond the boundaries of the earth. A local heaven and a local hell are found in every mythology. In Greece, as to heaven, there was a universal agreement that it was situated above the blue sky; but as to hell, much difference of opinion prevailed. There were many who thought that it was a deep abyss in the interior of the earth, to which certain passages, such as the Acherusian cave in Bithynia, led. But those who, with Anaximenes, considered the earth to be like a broad leaf floating in the air, and who accepted the doctrine that hell was divided into a Tartarus, or region of night on the left, and an Elysium, or region of dawn on the right, and that it was equally distant from all parts of the upper surface, were nearer to the original conception, which doubtless placed it on the under or shadowy side of the earth. The portals of descent were then in the west, where the sun and stars set, though here and there were passages leading through the ground to the other side, such as those by which Hercules and Ulysses had gone. The place of ascent was in the east, and the morning twilight a reflection from the Elysian Fields.

The picture of Nature thus interpreted has for its centre the earth; for its most prominent object, man. Whatever there is has been made for his pleasure, or to minister to his use. To this belief that every thing is of a subordinate value compared with himself, he clings with tenacity even in his most advanced mental state.

Not without surprise do we trace the progress of the human mind. The barbarian, the believer in sorcery, lives in incessant dread. All nature seems to be at enmity with him and conspiring for his hurt. Out of the darkness he can not tell what alarming spectre may emerge; he may, with reason, fear that injury is concealed in every stone, and hidden behind every leaf. How wide is the interval from this terror-stricken condition to that state in which man persuades himself of the human destiny of the universe! Yet, wonderful to be said, he passes that interval at a single step.

In the infancy of the human race, geographical and astronomical ideas are the same all over the world, for they are the interpretation of things according to outward appearances, the accepting of phenomena as they are presented, without any of the corrections that reason may offer. This universality and homogeneousness is nothing more than a manifestation of the uniform mode of action of the human organization.

But such homogeneous conclusions, such similar pictures, are strictly peculiar to the infancy of humanity. The reasoning faculty at length inevitably makes itself felt, and diversities of interpretation ensue. Comparative geography, comparative astronomy, comparative theology thus arise, homogeneous at first, soon exhibiting variations, but ending in identity.

To that tendency for personification which marks the early life of man are due many of the mythologic conceptions. It was thus that the Hours, the Dawn, and Night, with her black mantle bespangled with stars, received their forms. Many of the most beautiful legends were thus of a personified astronomical origin, many were derived from physical nature. The clouds were thus made to be animated things; a moving spirit was given to the storm, the dew, the wind. The sun setting in the glowing clouds of the west becomes Hercules in the fiery pile; the morning dawn extinguished by the rising sun is embodied in the story of Orpheus and Eurydice. These legends still survive in India.

But it must not be supposed that all Greek mythology can be thus explained. It is enough for us to examine the circumstances under which, for many ages, the European communities had been placed, to understand that they had forgotten much that their ancestors had brought from Asia. Much that was new had also spontaneously arisen. The well-known variations of their theogony are not merely different legends of different locali-

The anthropo-
centric stage
of thought.

From homogeneous
ideas the compara-
tive sciences emerge.

Introduction of per-
sonified forms.

The gradual and
affiliated advance
of Greek theolog-
ical ideas.

ties, they are more frequently successive improvements of the same place. The general theme upon which they are based requires the admission of a primitive chaotic disturbance of incomprehensible gigantic powers, brought into subjection by Divine agency, that agency dividing and regulating the empire it had thus acquired in a harmonious way. To this general conception was added a multitude of adventitious ornaments, some of which were of a rude astronomical, some of a moral, some, doubtless, of a historical kind. The primitive chaotic conflicts appear under the form of the war of the Titans; their end is the confinement of those giants in Tartarus; their compulsory subjection is the commencement of order: thus Atlas, the son of Iapetos, is made to sustain the vault of heaven in its western verge. The regulation of empire is shadowed forth in the subdivision of the universe between Zeus and his brothers, he taking the heavens, Poseidon the sea, and Hades the under world, all having the earth as their common theatre of action. The moral is prefigured by such myths as those of Prometheus and Epimetheus, the fore-thinker and the after-thinker; the historical in the deluge of Deucalion, the sieges of Thebes and of Troy. A harmony with human nature is established through the birth and marriage of the gods, and likewise by their sufferings, passions, and labors. The supernatural is gratified by Centaurs, Gorgons, Harpies, and Cyclops.

The composite nature of the resulting mythology.

It would be in vain to attempt the reduction of such a patchwork system to any single principle, astronomical or moral, as some have tried to do—a system originating from no single point as to country or to time. The gradual growth of many ages, its diversities are due to many local circumstances. Like the romances of a later period, it will not bear an application of the ordinary rules of life. It recommended itself to a people who found pleasure in accepting without any question statements no matter how marvelous, impostures no matter how preposterous. Gods, heroes, monsters, and men might figure together without any outrage to probability when there was no astronomy, no geography, no rule of evidence, no standard of belief. But the downfall of such a system was inevitable as soon as men began to deal with facts—as soon as history commenced to record, and philosophy to discuss. Yet not without reluctance was the faith of so many centuries given up. The extinction of a religion is not the abrupt movement of a day, it is a secular process of many well-marked stages—the rise of doubt among the candid; the disapprobation of the conservative; the defense of ideas fast becoming obsolete by the well-meaning, who hope that allegory and new interpretations may give renewed probability to what is almost incredible. But dissent ends in denial at last.

Before we enter upon the history of that intellectual movement which thus occasioned the ruin of the ancient system, we must bring to our-

selves the ideas of the Greek of the eighth century before Christ, who thought that the blue sky is the floor of heaven, the habitation of the Olympian gods; that the earth, man's proper seat, is flat, and circularly extended, like a plate, beneath the starry canopy.

Primitive astronomy and geography.

On its rim is the circumfluous ocean, the source of the rivers, which all flow to the Mediterranean, appropriately in after ages so called, since it is in the midst, in the centre of the expanse of the land. "The sea-girt disk of the earth supports the vault of heaven." Impelled by a celestial energy, the sun and stars, issuing forth from the east, ascend with difficulty the crystalline dome, but down its descent they more readily hasten to their setting. No one can tell what they encounter in the land of shadows beneath, nor what are the dangers of the way. In the morning the dawn mysteriously appears in the east, swiftly spreading over the confines of the horizon; in the evening the twilight fades gradually away. Besides the celestial bodies, the clouds are continually moving over the sky, forever changing their colors and their shape. No one can tell whence the wind comes or whither it goes; perhaps it is the breath of that invisible divinity who launches the lightning, or of him who rests his bow against the cloud. Not without delight might men contemplate the emerald plane, the sapphire dome, the border of silvery water, ever tranquil and ever flowing. Then, in the interior of the solid earth, or perhaps on the other side of its plane—under world, as it was well termed—is the realm of Hades or Pluto, the region of Night. From the midst of his dominion, that divinity, crown-

The under world and its spectres.

ed with a diadem of ebony, and seated on a throne framed out of massive darkness, looks into the infinite abyss beyond, invisible himself to mortal eyes, but made known by the nocturnal thunder which is his weapon. The under world is also the realm to which the spirits retire after death. At its portals, beneath the setting sun, is stationed a numerous tribe of spectres—Care, Sorrow, Disease, Age, Want, Fear, Famine, War, Toil, Death, and her half-brother Sleep—Death, to whom it is useless for man to offer either prayers or sacrifice. In that land of forgetfulness and shadows there is the unnavigable lake Avernus, Acheron, Styx, the groaning Cocytus, and Phlegethon, with its waves of fire. There are all kinds of monsters and forms of fearful import: Cerberus, with his triple head; Charon, freighting his boat with the shades of the dead; the Fates, in their garments of ermine bordered with purple; the avenging Erinnys; Rhadamanthus, before whom every Asiatic must render his account; Æacus, before whom every European; and Minos, the dread arbiter of the judgment-seat. There, too, are to be seen those great criminals whose history is a warning to us: the giants, with dragons' feet extended in the burning gulf for many a mile; Phlegyas, in perpetual terror of the stone suspended over him, which never falls; Ixion chained to his wheel; the daughters of Danaus still vainly try-

ing to fill their sieve; Tantalus, immersed in the water to his chin, yet tormented with unquenchable thirst; Sisyphus despairingly laboring at his ever-descending stone. Warned by such examples, we may learn not to condemn the gods. Beyond these sad scenes, extending far to the right, are the plains of pleasure, the Elysian Fields; and Lethe, the river of oblivion, of which whoever tastes, though he should ascend to the eastern boundary of the earth, and return again to life and day, forgets whatever he has seen.

If the interior or the under side of the earth is thus occupied by phantoms and half-animated shades of the dead, its upper surface, inhabited by man, has also its wonders. In its centre is the Mediterranean Sea, as we have said, round which are placed all the known countries, each full of its own mysteries and marvels. Of these how many we might recount if we followed the wanderings of Odysseus, or the voyage of Jason and his heroic comrades in the ship *Argo*, when they went to seize the golden fleece of the speaking ram. We might tell of the Harpies, flying women-birds of obscene form; of the blind prophet and the self-shutting rocks *Symplegades*, between which, as if by miracle, the Argonauts passed, the colliding cliffs almost entrapping the stern of their vessel, but destined by fate from that portentous moment never to close again; of the country of the Amazons, and of Prometheus groaning on the rock to which he was nailed, of the avenging eagle forever hovering and forever devouring; of the land of *Æetes*, and of the bulls with brazen feet and flaming breath, and how Jason yoked and made them plow; of the enchantress *Medea*, and the unguent she concocted from herbs that grew where the blood of Prometheus had dripped; of the field sown with dragons' teeth, and the mail-clad men that leaped out of the furrows; of the magical stone that divided them into two parties, and impelled them to fight each other; of the scaly dragon that guarded the golden fleece, and how he was lulled with a charmed potion, and the treasure carried away; of the River *Phasis*, through whose windings the *Argo* sailed into the circumfluous sea; of the circumnavigation round that tranquil stream to the sources of the Nile; of the Argonauts carrying their sentient, self-speaking ship on their shoulders through the sweltering Libyan deserts; of the island of *Circe*, the enchantress; of the rock, with its grateful haven, which in the height of a tempest rose out of the sea to receive them; of the arrow shot by *Apollo* from his golden bow; of the brazen man, the work of *Hephaistos*, who stood on the shore of *Crete*, and hurled at them as they passed vast fragments of stone; of their combat with him and their safe return to *Iolcos*; and of the translation of the ship *Argo* by the goddess *Athene* to heaven.

Such were some of the incidents of that celebrated voyage, the story of which enchanted all Greece before the *Odyssey* was written. I have

Not space to tell of the wonders that served to decorate the geography of those times. On the north there was the delicious country of the Hyperboreans, beyond the reach of winter; in the west the garden of the Hesperides, in which grew apples of gold; in the east the groves and dancing-ground of the sun; in the south the country of the blameless Ethiopians, whither the gods were wont to resort. In the Mediterranean itself the Sirens beguiled the passers-by with their songs near where Naples now stands; adjoining were Scylla and Charybdis; in Sicily were the one-eyed Cyclops and cannibal Læstrygons. In the island of Erytheia the three-headed giant Geryon tended his oxen with a double-headed dog. I need not speak of the lotus-eaters, whose food made one forget his native country; of the floating island of Æolus; of the happy fields in which the horses of the sun were grazing; of bulls and dogs of immortal breed; of hydras, gorgons, and chimeras; of the flying man Dædalus, and the brazen chamber in which Danaë was kept. There was no river, no grotto that had not its genius; no island, no promontory without its legend.

Union of the geographical and the marvelous.

It is impossible to recall these antique myths without being satisfied that they are, for the most part, truly indigenous, truly of European growth. The seed may have been brought, as comparative philologists assert, from Asia, but it had luxuriantly germinated and developed under the sky of Europe. Of the legends, many are far from answering to their reputed Oriental source; their barbarism and indel-

Earliest Greek theological ideas indicate a savage state.

icacy represent the state of Europe. The outrage of Kronos on his father Uranos speaks of the savageism of the times; the story of Dionysos tells of man-stealing and piracy; the rapes of Europa and Helen, of the abduction of women. The dinner in which Itys was served up assures us that cannibalism was practiced; the threat of Laomedon that he would sell Poseidon and Apollo for slaves shows how compulsory labor might be obtained. The polygamy of many heroes often appears in its worst form under the practice of sister-marriage, a crime indulged in from the King of Olympus downward. Upon the whole, then, we must admit that Greek mythology indicates a barbaric social state, man-stealing, piracy, human sacrifice, polygamy, cannibalism, and crimes of revenge that are unmentionable. A personal interpretation, such as man in his infancy resorts to, is embodied in circumstances suitable to a savage time. It was not until a later period that allegorical phantasms, such as Death, and Sleep, and Dreams were introduced, and still later when the old system was affected by Lydian, Phrygian, Assyrian, and Egyptian ideas.

Not only thus from their intrinsic nature, but also from their recorded gradual development, are we warranted in imputing to the greater part of the myths an indigenous origin. The theogony of Homer is extended by Hesiod in many essential points.

Their gradual improvement in the historic times.

He prefixes the dynasty of Uranos, and differs in minor conceptions, as in the character of the Cyclops. The Orphic theogony is again another advance, having new fictions and new personages, as in the case of Zagreus, the horned child of Jupiter by his own daughter Persephone. Indeed, there is hardly one of the great and venerable gods of Olympus whose character does not change with his age, and, seen from this point of view, the origin of the Ionic philosophy becomes a necessary step in

The inevitable tendency is to the Ionic philosophy.

the advance. That philosophy, as we shall soon find, was due not only to the expansion of the Greek intellect and the necessary improvement of Greek morals; an extraneous cause, the sudden opening of the Egyptian ports, 670 B.C., accelerated it. European religion became more mysterious and more solemn. European philosophy learned the error of its chronology, and the necessity of applying a more strict and correct standard of evidence for ancient events.

It was an ominous circumstance that the Ionian Greeks, who first began to philosophize, commenced their labors by depersonifying the elements, and treating not of Zeus, Poseidon, and Hades, but of Air, Water, Fire. The destruction of theological conceptions led irresistibly to the destruction of religious practices. To divinities whose existence he denied, the philosopher ceased to pray. Of what use were sacrificial offerings and entreaties directed to phantasms of the imagination? but advantages might accrue from the physical study of the impersonal elements.

Greek religion contained within itself the principles of its own destruction. It is for the sake of thoroughly appreciating this that I have been led into a detail of what some of my readers may be disposed to regard as idle and useless myths. Two circumstances of inevitable occurrence insured the eventual overthrow of the whole system; they were geographical discovery and the rise of philosophical criticism. Our attention is riveted by the fact that, two thousand years later, the same thing again occurred on a greater scale.

Inevitable destruction of Greek religious ideas

As to geographical discovery, how was it possible that all the marvels of the Mediterranean and Black Seas, the sorcerers, enchanters, giants, and monsters of the deep, should survive when those seas were daily crossed in all directions? how was it possible that the notion of a flat earth, bounded by the horizon and bordered by the circumfluous ocean, could maintain itself when colonies were being founded in Gaul, and the Phœnicians were bringing tin from beyond the Pillars of Hercules? Moreover, it so happened that many of the most astounding prodigies were affirmed to be in the track which circumstances had now made the chief pathway of commerce. Not only was there a certainty of the destruction of mythical geography as thus presented on the plane of the earth looking upward to day; there was also an imminent risk, as many pious persons foresaw and dreaded, that what had been asserted as respects the interior, or the other face looking down-

by geographical discovery.

ward into night, would be involved in the ruin too. Well, therefore, might they make the struggle they did for the support of the ancient doctrine, taking the only course possible to them, of converting what had been affirmed to be actual events into allegories, under which, they said, the wisdom of ancient times had concealed many sacred and mysterious things. But it is apparent that a system which is forced to this necessity is fast hastening to its end.

Nor was it maritime discovery only that thus removed fabulous prodigies and gave rise to new ideas. In due course of time the Macedonian expedition opened a new world to the Greeks, and presented them with real wonders; climates in marvelous diversity, vast deserts, mountains covered with eternal snow, salt seas far from the ocean, colossal animals, and men of every shade of color and every form of religion. The numerous Greek colonies founded all over Asia gave rise to an incessant locomotion, and caused these natural objects to make a profound and permanent impression on the Hellenic mind. If through the Bactrian empire European ideas were transmitted to the far East, through that and other similar channels Asiatic ideas found their way to Europe.

At the dawn of reliable tradition the Phœnicians were masters of the Mediterranean Sea. Europe was altogether barbarous. On the very verge of Asiatic civilization the Thracians scalped their enemies and tattooed themselves; at the other end of the continent the Britons daubed their bodies with ochre and woad. Contemporaneous Egyptian sculptures show the Europeans dressed in skins like savages. It was the instinct of the Phœnicians every where to establish themselves on islands and coasts, and thus, for a long time, they maintained a maritime supremacy. By degrees a spirit of adventure was engendered among the Greeks. In 1250 B.C. they sailed round the Euxine, giving rise to the myth of the Argonautic voyage, and creating a profitable traffic in gold, dried fish, and corn. They had also become infamous for their freebooting practices. From every coast they stole away men, women, and children, thereby maintaining a considerable slave-trade, the relic of which endures to our time in the traffic for Circassian women. Minos, king of Crete, tried to suppress these piracies. His attempts to obtain the dominion of the Mediterranean were imitated in succession by the Lydians, Thracians, Rhodians, the latter being the inventors of the first maritime code, subsequently incorporated into Roman law. The manner in which these and the inhabitants of other towns and islands supplanted one another shows on what trifling circumstances the dominion of the eastern basin depended. Meantime Tyrian seamen stealthily sailed beyond the Pillars of Hercules, visiting the Canaries and Azores, and bringing tin from the British islands. They used every precaution to keep their secret to themselves. The

Fictitious marvels
replaced by grand
actualities.

Development of
Mediterranean
commerce.

adventurous Greeks followed those mysterious navigators step by step, but in the time of Homer they were so restricted to the eastern basin that Italy may be said to have been to them an unknown land. The Phocæans first explored the western basin; one of their colonies built Marseilles. At length Coleus of Samos passed through the frowning gateway of Hercules into the circumfluous sea, the Atlantic Ocean. No little interest attaches to the first colonial cities; they dotted the shores from Sinope to Saguntum, and were at once trading-depôts and foci of wealth. In the earliest times the merchant was his own captain, and sold his commodities by auction at the place to which he came. The primitive and profitable commerce of the Mediterranean was peculiar—it was for slaves, mineral products, and articles of manufacture; for, running coincident with parallels of latitude, its agricultural products were not very varied, and the wants of its populations the same. But tin was brought from the Cassiterides, amber from the Baltic, and dyed goods and worked metals from Syria. Wherever these trades centred the germs of taste and intelligence were developed; thus the Etruscans, in whose hands was the amber trade across Germany, have left many relics of their love of art. Though a mysterious, they were hardly a gloomy race, as a great modern author has supposed, if we may judge from those beautiful remains.

Added to the effect of geographical discovery was the development of philosophical criticism. It is observed that soon after the first Olympiad the Greek intellect very rapidly expanded. Whenever man reaches a certain point in his mental progress, he will not be satisfied with less than an application of existing rules to ancient events. Experience has taught him that the course of the world to-day is the same as it was yesterday; he unhesitatingly believes that this will also hold good for to-morrow. He will not bear to contemplate any break in the mechanism of history; he will not be satisfied with a mere uninquiring faith, but insists upon having the same voucher for an old fact that he requires for one that is new. Before the face of History Mythology can not stand.

The operation of this principle is seen in all directions throughout Greek literature after the date that has been mentioned, and this the more strikingly as the time is later. The national intellect became more and more ashamed of the fables it had believed in its infancy. Of the legends, some are allegorized, some are modified, some are repudiated. The great tragedians accept the myths in the aggregate, but decline them in particulars; some of the poets transform or allegorize them; some use them ornamentally, as graceful decorations. It is evident that between the educated and the vulgar classes a divergence is taking place, and that the best men of the times see the necessity of either totally abandoning these cherished fictions to

Effect of philosophical criticism.

Secession of literary men from the public faith.

the lower orders, or of gradually replacing them with something more suitable. Such a frittering away of sacred things was, however, very far from meeting with public approbation in Athens itself, although so many people in that city had reached that state of mental development in which it was impossible for them to continue to accept the national faith. They tried to force themselves to believe that there must be something true in that which had been believed by so many great and pious men of old, which had approved itself by lasting so many centuries, and of which it was by the common people asserted that absolute demonstration could be given. But it was in vain; intellect had outgrown faith. They had come into that condition to which all men are liable—aware of the fallacy of their opinions, yet angry that another should remind them thereof. When the social state no longer permitted them to take the life of a philosophical offender, they found means to put upon him such an invisible pressure as to present him the choice of orthodoxy or beggary. Thus they disapproved of Euripides permitting his characters to indulge in any skeptical reflections, and discountenanced the impiety so obvious in the *Prometheus Bound* of Æschylus. It was by appealing to this sentiment that Aristophanes added no little to the excitement against Socrates. Those who are doubting themselves are often loudest in public denunciations of a similar state in others.

If thus the poets, submitting to common sense, had so rapidly fallen away from the national belief, the philosophers pursued the same course. It soon became the universal impression that there was an intrinsic opposition between philosophy and religion, and herein public opinion was not mistaken; the fact that polytheism furnished a religious explanation for every natural event made it essentially antagonistic to science. It was the uncontrollable advancement of knowledge that overthrew Greek religion. Socrates himself never hesitated to denounce physics for that tendency, and the Athenians extended his principles to his own pursuits, their strong common sense telling them that the philosophical cultivation of ethics must be equally bad. He was not loyal to science, but sought to support his own views by exciting a theological odium against his competitors—a crime that educated men ought never to forgive. In the tragedy that ensued the Athenians only paid him in his own coin. The immoralities imputed to the gods were doubtless strongly calculated to draw the attention of reflecting men, but the essential nature of the pursuit in which the Ionian and Italian schools were engaged bore directly on the doctrine of a providential government of the world. It not only turned into a fiction the time-honored dogma of the omnipresence of the Olympian divinities—it even struck at their very existence, by leaving them nothing to do. For those personifications it introduced impersonal nature or the elements.

Instead of uniting scientific interpretations to ancient traditions, it modified and moulded the old traditions to suit the apparent requirements of science. We shall subsequently see what was the necessary issue of this, that the Divinity became excluded from the world he had made, the supernatural merged in natural agency; Zeus was superseded by the air, Poseidon by the water; and, while some of the philosophers received in silence the popular legends, as was the case with Socrates, or, like Plato, regarded it as a patriotic duty to accept the public faith, others, like Xenophanes, denounced the whole as an ancient blunder, converted by time into a national imposture.

As I shall have in a detailed manner occasion to speak of Greek philosophy, it is unnecessary to enter into other particulars here. For the present purpose it is enough to understand that it was radically opposed to the national faith in all countries and at all times, from its origin with Thales down to the latest critic of the Alexandrian school.

As it was with philosophers, so it was with historians; the rise of true history brought the same result as the rise of true philosophy. In this instance there was added a special circumstance which gave to the movement no little force. Whatever might be the feigned facts of the Grecian foretime, they were altogether outdone in antiquity and wonder by the actual history of Egypt. What was a pious man like Herodotus to think when he found that, at the very period he had supposed a superhuman state of things in his native country, the ordinary passage of affairs was taking place on the banks of the Nile? And so indeed it had been for untold ages. To every one engaged in recording recent events, it must have been obvious that a chronology applied where the actors are superhuman is altogether without basis, and that it is a delusion to transfer the motives and thoughts of men to those who are not men. Under such circumstances there is a strong inducement to decline traditions altogether; for no philosophical mind will ever be satisfied with different tests for the present and the past, but will insist that actions and their sequences were the same in the foretime as now.

Thus for many ages stood affairs. One after another, historians, philosophers, critics, poets, had given up the national faith, and lived under a pressure perpetually laid upon them by the public, adopting generally, as their most convenient course, an outward compliance with the religious requirements of the state. Herodotus can not reconcile the inconsistencies of the Trojan War with his knowledge of human actions; Thucydides does not dare to express his disbelief of it; Eratosthenes sees contradictions between the voyage of Odysseus and the truths of geography; Anaxagoras is condemned to death for impiety, and only through the exertions of the chief of the state is his

sentence mercifully commuted to banishment. Plato, seeing things from a very general point of view, thinks it expedient, upon the whole, to prohibit the cultivation of the higher branches of physics. Euripides tries to free himself from the imputation of heresy as best he may. Æschylus is condemned to be stoned to death for blasphemy, and is only saved by his brother Aminias raising his mutilated arm—he had lost his hand in the battle of Salamis. Socrates stands his trial, and has to drink hemlock. Even great statesmen like Pericles had become entangled in the obnoxious opinions. No one has any thing to say in explanation of the marvelous disappearance of demigods and heroes, why miracles are ended, or why human actions alone are now to be seen in the world. An ignorant public demands the instant punishment of every suspected man. In their estimation, to distrust the traditions of the past is to be guilty of treason to the present.

But all this confusion and dissent did not arise without an attempt among well-meaning men at a reformation. Some, and they were, perhaps, the most advanced intellectually, wished that Attempts at a reformation. the priests should abstain from working any more miracles; that relics should be as little used as was consistent with the psychical demands of the vulgar, and should be gradually abandoned; that philosophy should no longer be outraged with the blasphemous anthropomorphisms of the Olympian deities. Some, less advanced, were disposed to reconcile all difficulties by regarding the myths as allegorical; some wished to transform them so as to bring them in harmony with the existing social state; some would give them altogether new interpretations. With one, though the fact of a Trojan War is not to be denied, it was only the eidolon of Helen whom Paris carried away; with another, expressions, perhaps once intended to represent actual events, are dwindled into mere forms of speech. Unwilling to reject the attributes of the Olympian divinities, their human passions and actions, another asserts that they must once have all existed as men. While one denounces the impudent atheists who find fault with the myths of the Iliad, ignorant of its allegorical meaning, another resolves all its heroes into the elements; and still another, hoping to reconcile to the improved moral sense of the times the indecencies and wickednesses of the gods, imputes them all to demons; an idea which found much favor at first, but became singularly fatal to polytheism in the end.

In apparent inconsistency with this declining state of belief in the higher classes, the multitude, without concern, indulged in the most surprising superstitions. With them it was an age of relics, of Inveterate superstition of the vulgar. weeping statues, and winking pictures. The tools with which the Trojan horse was made might still be seen at Metapontum, the sceptre of Pelops was still preserved at Chæroneia, the spear of Achilles at Phælis, the sword of Memnon at Nicomedia; the Tegeates could still

show the hide of the Calydonian boar, very many cities boasted their possession of the true palladium from Troy. There were statues of Athene that could brandish spears, paintings that could blush, images that could sweat, and endless shrines and sanctuaries at which miracle-cures were performed. Into the hole through which the deluge of Deucalion receded the Athenians still poured a customary sacrifice of honey and meal. He would have been an adventurous man who risked any observation as to its inadequate size. And, though the sky had been proved to be only space and stars, and not the firm floor of Olympus, he who had occasion to refer to the flight of the gods from mountain tops into heaven would find it to his advantage to make no astronomical remark. No adverse allusions to the poems of Homer, Arctinus, or Lesches were tolerated; he who perpetrated the blasphemy of depersonifying the sun went in peril of death. They would not bear that natural laws should be substituted for Zeus and Poseidon; whoever was suspected of believing that Helios and Selene were not gods, would do well to purge himself to public satisfaction. The people vindicated their superstition in spite of all geographical and physical difficulties, and, far from concerning themselves with those contradictions which had exerted such an influence on the thinking classes, practically asserted the needlessness of any historical evidence.

It is altogether erroneous to suppose that polytheism maintained its ground as a living force until the period of Constantine and Julian. Its downfall commenced at the time of the opening of the Egyptian ports. Nearly a thousand years were required for a consummation. The change first occurred among the higher classes, and made its way slowly through the middle ranks of society. For many centuries the two agencies—geographical discovery, arising from increasing commerce and the Macedonian expedition, and philosophical criticism—silently continued their incessant work, and yet it does not appear that they could ever enforce a change on the lowest and most numerous division of the social grade. In process of time, a third influence was added to the preceding two, enabling them to address themselves even to the humblest rank of life; this influence was the rise of the Roman power. It produced a wonderful activity all over the Mediterranean Sea and throughout the adjoining countries. It insured perpetual movements in all directions. Where there had been only a single traveler there were now a thousand legionaries, merchants, government officials, with their long retinues of dependents and slaves. Where formerly it was only the historian or philosopher in his retirement who compared together the different laws and habits and customs of different nations incorrectly reported, now things were vividly brought under the personal observation of

Their jealous intolerance of doubts.

Slowness of the decline and fall of Polytheism.

The secondary causes of its downfall.

tudes. The crowd of gods and goddesses congregated in Rome served only to bring one another into disrepute and ridicule.

Long, therefore, previous to the triumph of Christianity, paganism must be considered as having been irretrievably ruined. Doubtless it was the dreadful social prospect before them—the apparent impossibility of preventing the whole world from falling into a totally godless state, that not only reconciled so many great men to give their support to the ancient system, but even to look without disapprobation on that physical violence to which the uneducated multitude, incapable of judging, were so often willing to resort. They never anticipated that any new system could be introduced which should take the place of the old, worn-out one; they had no idea that relief in this respect was so close at hand; unless, perhaps, it might have been Plato, who, profoundly recognizing that, though it is a hard and tedious process to change radically the ideas of common men, yet that it is easy to persuade them to accept new names if they are permitted to retain old things, proposed that a regenerated system should be introduced, with ideas and forms suited to the existing social state, prophetically asserting that the world would very soon become accustomed to it, and give to it an implicit adhesion.

The alarm of good and religious men.

Plato's remedy for the evil.

In this description of the origin and decline of Greek religion I have endeavored to bring its essential features into strong relief. Its fall was not sudden, as many have supposed, neither was it accomplished by extraneous violence. There was a slow, and, it must be emphatically added, a spontaneous decline. But, if the affairs of men pass in recurring cycles—if the course of events with one individual has a resemblance to the course of events with another—if there are analogies in the progress of nations, and things reappear after due periods of time, the succession of circumstances thus displayed before us in the intellectual history of Greece may perhaps be recognized again in grander proportions on the theatre of all Europe. If there is for the human mind a predetermined order of development, may we not reasonably expect that the phenomena we have thus been noticing on a small scale in a single nation will reappear on the great scale in a continent; that the philosophical study of this history of the past will not only serve as an interpretation of many circumstances in the history of Europe in the Dark and Middle Ages, but will also be a guide to us in pointing out future events as respects all mankind? For, though it is true that the Greek intellectual movement was anticipated, as respects its completion, by being enveloped and swallowed up in the slower but more gigantic movements of the southern European mind, just as a little expanding circle upon the sea may be obliterated and borne away by more imposing and impetuous waves, so even the movement of a continent may be lost in the movement of a world. It was criti-

The Greek movement has been repeated on the great scale by all Europe.

cism, and physical discovery, and intellectual activity, arising from political concentration, that so profoundly affected the modes of Grecian thought, and criticism and discovery have within the last four hundred years done the same in all Europe. To one who forms his expectations of the future from the history of the past—who recalls the effect produced by the establishment of the Roman empire, in permitting free personal intercommunication among all the Mediterranean nations, and thereby not only destroying the ancient forms of thought, which for centuries had resisted all other means of attack, and replacing them by a homogeneous idea, it must be apparent that the wonderfully increased facilities for locomotion, the inventions of our own age, are the ominous precursors of a vast philosophical revolution.

Between that period during which a nation has been governed by its imagination and that in which it submits to reason, there is a melancholy interval. The constitution of man is such that, for a long time after he has discovered the incorrectness of the ideas prevailing around him, he shrinks from openly emancipating himself from their dominion, and, constrained by the force of circumstances, he lives a hypocrite, publicly applauding what his private judgment condemns. Where a nation is making this passage, so universal do these practices become that it may be truly said that hypocrisy is organized. It is possible that whole communities might be found living in this deplorable state. Such, I conceive, must have been the case in many parts of the Roman empire just previously to the introduction of Christianity. Even after ideas have given way in public opinion, their political power may outlive their intellectual, and produce the disgraceful effect we here consider.

It is not to be concealed, however, that, to some extent, this evil is incident to the position of things. Indeed, it would be unfortunate if national hypocrisy could not find a better excuse for itself than individual. In civilized life, society is ever under the imperious necessity of moving onward in legal forms, nor can such forms be avoided without the most serious disasters forthwith ensuing. To absolve communities too abruptly from the restraints of ancient ideas is not to give them liberty, but to throw them into political vagabondism, and hence it is that great statesmen will authorize and even compel observances the essential significance of which has disappeared, and the intellectual basis of which has been undermined. Truth reaches her full action by degrees, and not at once; she first operates upon the reason, the influence being purely intellectual and individual; she then extends her sphere, exerting a moral control, particularly through public opinion; at last she gathers for herself physical and political force. It is in the time consumed in this gradual passage that organized hypocrisy prevails. To bring nations to surrender themselves to new ideas is not the affair of a day.

CHAPTER III.

DIGRESSION ON HINDU THEOLOGY AND EGYPTIAN CIVILIZATION.

- Comparative Theology of India ; its Phase of Sorcery ; its Anthropocentric Phase.*
VEDAISM the Contemplation of Matter, or Adoration of Nature, set forth in the Vedas and Institutes of Menu. — The Universe is God. — Transmutation of the World. — Doctrine of Emanation. — Transmigration. — Absorption. — Penitential Services. — The Happiness of absolute Quietude.
BUDDHISM the Contemplation of Force. — The supreme impersonal Power. — Nature of the World — of Man. — The Passage of every thing to Nonentity. — Development of Buddhism into a vast monastic System marked by intense Selfishness. — Its practical Godlessness.
EGYPT a mysterious Country to the old Europeans. — Its History, great public Works, and foreign Relations — its Fall. — Antiquity of its Civilization and Art. — Its Philosophy, hieroglyphic Literature, and peculiar Agriculture.
Rise of Civilization in rainless Countries. — Geography, Geology, and Topography of Egypt. — The Inundations of the Nile lead to Astronomy.
Comparative Theology of Egypt. — Animal Worship, Star Worship. — Impersonation of Divine Attributes — Pantheism. — The Trinities of Egypt. — Incarnation. — Redemption. — Future Judgment. — Trial of the Dead. — Rituals and Ceremonies.

AT this stage of our investigation of European intellectual development, it will be proper to consider briefly two foreign influences—Indian and Egyptian—which affected it.

From the relations existing between the Hindu and European families, as described in the preceding chapter, a comparison of their intellectual progress presents no little interest. The movement of the elder branch indicates the path through which the younger ^{Of Hindu philosophy.} is traveling, and the goal to which it tends. In the advanced condition under which we live we notice Oriental ideas perpetually emerging in a fragmentary way from the obscurities of modern metaphysics—they are the indications of an intellectual phase through which the Indo-European mind must pass. And when we consider the ready manner in which these ideas have been adopted throughout China and the entire East, we may, perhaps, extend our conclusion from the Indo-European family to the entire human race. From hence we may also infer how unphilosophical and vain is the expectation of those who would attempt to restore the aged populations of Asia to our state. Their intellectual condition has passed onward, never more to return. It remains for them only to advance as far as they may in their own line and to die, leaving their place to others of a different constitution and of a renovated blood. In life there is no going back ; the morose old man can never resume

the genial confidence of maturity; the youth can never return to the idle and useless occupations, the frivolous amusements of boyhood; even the boy is parted by a long step from the innocent credulity of the nursery.

The earlier stages of the comparative theology of India are now inaccessible. At a time so remote as to be altogether prehistoric the phase of sorcery had been passed through. In the most ancient records remaining the Hindu mind is dealing with anthropocentric conceptions, not, however, so much of the physical as of the moral kind. Man had come to the conclusion that his chief concern is with himself. "Thou wast alone at the time of thy birth, thou wilt be alone in the moment of death; alone thou must answer at the bar of the inexorable Judge."

From this point there are two well-marked steps of advance. The first reaches the consideration of material nature; the second, which is very grandly and severely philosophical, contemplates the universe under the conceptions of space and force alone. The former is exemplified in the Vedas and Institutes of Menu, the latter in Buddhism. In neither of these stages do the ideas lie idle as mere abstractions; they introduce a moral plan, and display a constructive power not equaled even by the Italian papal system. They take charge not only of the individual, but regulate society, and show their influence in accomplishing political organizations, commanding our attention from their prodigious extent, and venerable for their antiquity.

I shall, therefore, briefly refer, first, to the older, Vedaism, and then to its successor, Buddhism.

Among a people possessing many varieties of climate, and familiar with some of the grandest aspects of Nature—mountains the highest upon earth, noble rivers, a vegetation incomparably luxuriant, periodical rains, tempestuous monsoons, it is not surprising that there should have been an admiration for the material, and a tendency to the worship of Nature. These spectacles leave an indelible impression on the thoughts of man, and, the more cultivated the mind, the more profoundly are they appreciated.

The Vedas, which are the Hindu Scriptures, and of which there are four, the Rig, Yagust, Saman, and Atharvan, are asserted to have been revealed by Brahma. The fourth is, however, rejected by some, and bears internal evidence of a later composition, at a time when hierarchical power had become greatly consolidated. These works are written in an obsolete Sanscrit, the parent of the more recent idiom. They constitute the basis of an extensive literature, Upavedas, Angas, etc., of connected works and commentaries. For the most part they consist of hymns suitable for public and private occasions, prayers,

The phase of sorcery, and anthropocentric phase.

Comparative theology advances in two directions—Matter, Force.

Vedism contemplates matter, Buddhism force.

Vedism is the adoration of Nature.

The Vedas and their doctrines.

precepts, legends, and dogmas. The Rig, which is the oldest, is composed chiefly of hymns, the other three of liturgical formulæ. They are of different periods and of various authorship, internal evidence seeming to indicate that if the later were composed by priests, the earlier were the production of military chieftains. They answer to a state of society advanced from the nomade to the municipal condition. They are based upon an acknowledgment of a universal Spirit pervading all things. Of this God they therefore necessarily acknowledge the unity: "There is in truth but one Deity, the Supreme Spirit, the Lord of the universe, whose work is the universe." "The God above all gods, who created the earth, the heavens, the waters," The world, thus considered as an emanation of God, is there-
 fore a part of him; it is kept in a manifest state by his energy, and would instantly disappear if that energy were for a moment withdrawn. Even as it is, it is undergoing unceasing transformations, every thing being in a transitory condition. The moment a given phase is reached, it is departed from, or ceases. In these perpetual movements the present can scarcely be said to have any existence, for as the Past is ending the Future has begun.

The Veda doctrine of God,

In such a never-ceasing career all material things are urged, their forms continually changing, and returning, as it were, through revolving cycles to similar states. For this reason it is that we may regard our earth, and the various celestial bodies, as having had a mo-
 ment of birth, a time of continuance, in which they are passing onward to an inevitable destruction, and that after the lapse of countless ages similar progresses will be made, and similar series of events will occur again and again.

Its transformation.

But in this doctrine of universal transformation there is something more than appears at first. The theology of India is underlaid with Pantheism. "God is One because he is All." The Vedas, in speaking of the relation of nature to God, make use of the expression that he is the Material as well as the Cause of the universe, "the Clay as well as the Potter." They convey the idea that while there is a pervading spirit existing every where of the same nature as the soul of man, though differing from it infinitely in degree, visible nature is essentially and inseparably connected therewith; that as in man the body is perpetually undergoing changes, perpetually decaying and being renewed, or, as in the case of the whole human species, nations come into existence and pass away, yet still there continues to exist what may be termed the universal human mind, so forever associated and forever connected are the material and the spiritual. And under this aspect we must contemplate the Supreme Being, not merely as a presiding intellect, but as illustrated by the parallel case of man, whose mental principle shows no tokens except through its connection with the body;

It is the visible semblance of God.

so matter, or nature, or the visible universe, is to be looked upon as the corporeal manifestation of God.

Secular changes taking place in visible objects, especially those of an astronomical kind, thus stand as the gigantic counterparts both as to space and time of the microscopic changes which we recognize as occurring in the body of man. However, in adopting these views of the relations of material nature and spirit, we must continually bear in mind that matter "has no essence independent of mental perception; that existence and perceptibility are convertible terms; that external appearances and sensations are illusory, and would vanish into nothing if the divine energy which alone sustains them were suspended but for a moment."

As to the relation between the Supreme Being and man, the soul is a portion or particle of that all-pervading principle, the Universal Intellect or Soul of the World, detached for a while from its primitive source, and placed in connection to the bodily frame, but destined by an inevitable necessity sooner or later to be restored and re-joined—as inevitably as that rivers run back to be lost in the ocean from which they arose. "That Spirit," says Varuna to his son, "from which all created beings proceed, in which, having proceeded, they live, toward which they tend, and in which they are at last absorbed, that Spirit study to know: it is the Great One."

Since a multitude of moral considerations assure us of the existence of evil in the world, and since it is not possible for so holy a thing as the spirit of man to be exposed thereto without undergoing contamination, it comes to pass that an unfitness may be contracted for its rejoining the infinitely pure essence from which it was derived, and hence arises the necessity of its undergoing a course of purification. And as the life of man is often too short to afford the needful opportunity, and, indeed, its events, in many instances, tend rather to increase than to diminish the stain, the season of purification is prolonged by perpetuating the connection of the sinful spirit with other forms, and permitting its transmigration to other bodies, in which, by the penance it undergoes, and the trials to which it is exposed, its iniquity may be washed away, making it fit for absorption in the ocean of infinite purity. Considering thus the relation in which all animated nature stands to us, being a mechanism for purification, this doctrine of the transmigration of the soul leads necessarily to other doctrines of a moral kind, more particularly to a profound respect for life under every form, human, animal, or insect.

The forms of animal life, therefore, furnish a grand penitential mechanism for man. Such, on these principles, is their teleological explanation. In European philosophy there is no equivalent or counterpart of this view. With us animal life is purpose-

less. Hereafter we shall find that in Egypt, though the doctrine of transmigration must of course have tended to similar suggestions, it became disturbed in its practical application by the base fetich notions of the indigenous African population. Hence the doctrine was cherished by the learned for philosophical reasons, and by the multitude for the harmony of its results with their idolatries.

From such theological dogmas a religious system obviously springs having for its object to hasten the purification of the soul, that it may the more quickly enter on absolute happiness, which is only to be found in absolute rest. The methods of shortening its wanderings and bringing it to repose are by the exercises of a pious life, penance, and prayer, and more especially by a profound contemplation of the existence and attributes of the Supreme Being. Of proper modes of devotion. In this profound contemplation many holy men have passed their lives.

Such is a brief statement of Vedic theology, as exhibited in the connected doctrines of the Nature of God, Universal Animation, Transmutation of the World, Emanation of the Soul, Manifestation of Visible Things, Transmigration, Absorption, the uses of Penitential Services, and Contemplation for the Attainment of Absolute Happiness in Absolute Rest. The Vedas also recognize a series of creatures superior to man, the gods of the elements and stars; they likewise personify the attributes of the Deity. The three Vedic divinities, Agni, Indra, and Surya, are not to be looked upon as existing independently, for all spirits are comprehended in the Universal Soul. The later Hindu trinity, Brahma, Vishnu, and Siva, is not recognized by them. Minor Vedic doctrines. They do not authorize the worship of deified men, nor of images, nor of any visible forms. They admit the adoration of subordinate spirits, as those of the planets, or of the demigods who inhabit the air, the waters, the woods; these demigods are liable to death. They inculcate universal charity—charity even to an enemy: "The tree doth not withdraw its shade from the woodcutter." Prayers are to be made thrice a day, morning, noon, evening; fasting is ordained, and ablution before meals; the sacrificial offerings consist of flowers, fruits, money. Considered as a whole, their religious tendency is selfish: it puts in prominence the baser motives, and seeks the gratification of the animal appetites, as food, pleasure, good fortune. They suggest no proselyting spirit, but rather adopt the principle that all religions must be equally acceptable to God, since, if it were otherwise, he would have instituted a single one, and, considering his omnipotence, none other could have possibly prevailed. They contain no authorization of the division of castes, which probably had arisen in the necessities of antecedent conquests, but which have imposed a perpetual obstacle to any social progress, keeping each class of society in an immovable state, and concentrating knowledge and power in a hierarchy. Neither in them, nor, it is affirm-

ed, in the whole Indian literature, is there a single passage indicating a love of liberty. The Asiatics can not understand what value there is in it. They have balanced Freedom against Security; they have deliberately preferred the latter, and left the former for Europe to sigh for. Liberty is alone appreciated in a life of action; but the life of Asia is essentially passive, and its desire is for tranquillity. Some have affirmed that this imbecility is due to the fact that that continent has no true temperate zone, and that thus, for ages, the weak nations have been in contact with the strong, and therefore the hopeless aspirations for personal freedom have become extinct. But nations who are cut off from the sea, or who have accepted the dogma that to travel upon it is unholy, can never comprehend liberty. From the general tenor of the Vedas, it would appear that the condition of women was not so much restrained as it became in later times, and that monogamy was the ordinary state. From the great extent of these works, their various dates and authorship, it is not easy to deduce from them consistent principles, and their parts being without any connection, complete copies are very scarce. They have undergone mutilation and restoration, so that great discordances have arisen.

In the Institutes of Menu, a code of civil and religious law, written about the ninth century before Christ, though, like the Vedas, betraying a gradual origin, the doctrine of the Divine unity becomes more distinctly mixed up with Pantheistic ideas. They present a description of creation, of the nature of God and the soul, and contain prescribed rules for the duty of man in every station of life, from the moment of birth to death. Their imperious regulations in all these minute details are a sufficient proof of the great development and paramount power to which the priesthood had now attained, but their morality is discreditable. They indicate a high civilization and demoralization, deal with crimes and a policy such as are incident to an advanced social condition. Their arbitrary and all-reaching spirit reminds one of the papal system; their recommendations to sovereigns, their authorization of immoralities, recall the state of Italian society as reflected in the works of Machiavelli. They hold learning in the most signal esteem, but concede to the prejudices of the illiterate in a worship of the gods with burnt-offerings of clarified butter and libations of the juices of plants. As respects the constitution of man, they make a distinction between the soul and the vital principle, asserting that it is the latter only which expiates sin by transmigration. They divide society into four castes—the priests, the military, the industrial, the servile. They make a Brahman the chief of all created things, and order that his life shall be divided into four parts—one to be spent in abstinence, one in marriage, one as an anchorite, and one in profound meditation; he may then “quit the body as a bird leaves the branch of a tree.” They vest

The Institutes
of Menu.

the government of society in an absolute monarch, having seven councilors, who directs the internal administration by a chain of officials, the revenue being derived from a share of agricultural products, taxes on commerce, imposts on shopkeepers, and a service of one day in the month from laborers.

In their essential principles the Institutes therefore follow the Vedas, though, as must be the case in every system intended for men in the various stages of intellectual progress from the least advanced to the highest, they show a leaning toward popular delusions. Both Both the Vedas and Institutes are pantheistic. are pantheistic, for both regard the universe as the manifestation of the Creator; both accept the doctrine of Emanation, teaching that the universe lasts only for a definite period of time, and then, the Divine energy being withdrawn, absorption of every thing, even of the created gods, takes place, and thus, in great cycles of prodigious duration, many such successive emanations and absorptions of universes occur.

The changes that have taken place among the orthodox in India since the period of the Institutes are in consequence of the diminution or disappearance of the highly philosophical classes, and the comparative predominance of the vulgar. They are Disappearance of the philosophical classes, and consequent prominence of anthropocentric ideas. stated by Mr. Elphinstone as a gradual oblivion of monotheism, the neglect of the worship of some gods and the introduction of others, the worship of deified mortals. The doctrine of human deification is carried to such an extent that Indra and other mythological gods are said to tremble lest they should be supplanted by men. This introduction of polytheism and use of images has probably been connected with the fact that there have been no temples to the Invisible God, and the uneducated mind feels the necessity of some recognizable form. In this manner the Trinitarian conception of Brahma, Vishnu, and Siva, with fourteen other chief gods, has been introduced. Vishnu and Siva are never mentioned in the Institutes, but they now engross the public devotions; besides these there are angels, genii, penates, and lares, like the Roman. Brahma has only one temple in all India, and has never been much worshiped. Chrishna is the great favorite of the women. The doctrine of incarnation has also become prevalent; the incarnations of Vishnu are innumerable. The opinion has also been spread that faith in a particular god is better than contemplation, ceremonial, or good works. A new ritual, instead of the Vêdas, has come into use, these scriptures being the eighteen Puranas, composed between the eighth and sixteenth centuries. They contain theogonies, accounts of the creation, philosophical speculations, fragmentary history, and may be brought to support any sectarian view, having never been intended as one general body, but they are received as incontrovertible authority. In former times great efficacy was attached to sacrifice and religious austerities, but the objects once accomplished

in that way are now compassed by mere faith. In the Baghavat Gita, the text-book of the modern school, the sole essential for salvation is dependence on some particular teacher, which makes up for every thing else. The efficacy which is thus ascribed to faith, and the facility with which sin may be expiated by penance, has led to great mental debility and superstition. It has added force to the doctrine of a material paradise of trees, flowers, banquets, hymns; and to a hell, a dismal place of flames, thirst, torment, and horrid spectres.

If such has been the gradual degradation of religion, through the suppression or disappearance of the most highly cultivated minds, the tendency of philosophy is not less strikingly marked. It is said that even in ancient times not less than six distinct philosophical schools may be recognized: 1, the prior Mimansa; 2, the later Mimansa, or Vedanta, founded by Vyasa about 1400 B.C., having a Vedanta literature of prodigious extent; 3, the Logical school, bearing a close resemblance to that of Aristotle, even in its details; 4, the Atomic school of Canade; 5, the Atheistical school of Capila; 6, the Theistical school of Patanjali.

This great theological system, enforced by a tyrannical hierarchy, did not maintain itself without a conflict. Buddhism arose as its antagonist. By an inevitable necessity, Vedaism must pass onward to Buddhism. The prophetic foresight of the great founder of this system was justified by its prodigious, its unparalleled, its enduring success—a success that rested on the assertion of the dogma of the absolute equality of all men, and this in a country that for ages had been oppressed by castes. If the Buddhist admits the existence of God, it is not as a Creator, for matter is equally eternal; and since it possesses a property of inherent organization, even if the universe should perish, this quality would quickly restore it, and carry it on to new regenerations and new decays without any external agency. It also is endued with intelligence and consciousness. The Buddhists agree with the Brahmins in the doctrine of Quietism, in the care of animal life, in transmigration. They deny the Vedas and Puranas, have no castes, and, agreeably to their cardinal principle, draw their priests from all classes like the European monks. They live in monasteries, dress in yellow, go barefoot, their heads and beards being shaved; they have constant services in their chapels, chanting, incense, and candles; erect monuments and temples over the relics of holy men. They put an especial merit in celibacy; renounce all the pleasures of sense; eat in one hall; receive alms. To do these things is incident to a certain phase of human progress.

Buddhism arose about the tenth century before Christ, its founder being Arddha Chiddi, a native of Capila, near Nepaul. Of his epoch there are, however, many other names: Avars, Siamese, and Cingalese fix

him B.C. 600; the Cashmerians, B.C. 1332; the Chinese, Mongols, and Japanese, B.C. 1000. The Sanscrit words occurring in Buddhism attest its Hindu origin, Buddha itself being the Sanscrit for intelligence. After the system had spread widely in India, it was carried by missionaries into Ceylon, Tartary, Thibet, China, Japan, Burmah, and is now professed by a greater portion of the human race than any other religion. Until quite recently, the history of Arddha Chiddi and the system he taught have, notwithstanding their singular interest, been very imperfectly known in Europe. He was born in affluence and of a royal family. In his twenty-ninth year he retired from the world, the pleasures of which he had tasted, and of which he had become weary. The spectacle of a gangrened corpse first arrested his thoughts. Leaving his numerous wives, he became a religious mendicant. It is said that he walked about in a shroud, drawn from the body of a female slave. Profoundly impressed with the vanity of all human affairs, he devoted himself to philosophical meditation, by severe self-denial emancipating himself from all worldly hopes and cares. When a man has brought himself to this pass he is able to accomplish great things. For the name by which his parents had called him he substituted that of Gotama, or "he who kills the senses," and subsequently Chakia Mouni, or the Penitent of Chakia. Under the shade of a tree Gotama was born; under the shade of a tree he overcame the love of the world and the fear of death; under the shade of a tree he preached his first sermon in the shroud; under the shade of a tree he died. In four months after he commenced his ministry he had five disciples; at the close of the year they had increased to twelve hundred. In the twenty-nine centuries that have passed since that time, they have given rise to sects counting millions of souls, outnumbering the followers of all other religious teachers. The system still seems to retain much of its pristine vigor; yet religions are perishable. There is no country, except India, which has the same religion now that it had at the birth of Christ.

Gotama died at the advanced age of eighty years; his corpse was burnt eight days subsequently. But several years before this event his system must be considered as thoroughly established. It shows how little depends upon the nature of a doctrine, and how much upon effective organization, that Buddhism, the principles of which are far above the reach of popular thought, should have been propagated with so much rapidity, for it made its converts by preaching, and not, like Mohammedanism, by the sword. Shortly after Gotama's death, a council of five hundred ecclesiastics assembled for the purpose of settling the religion. A century later a second council met to regulate the monastic institution; and in B.C. 241, a third council, for the expulsion of fire-worshippers. Under the auspices of King Asoka, whose character presents singular points of resemblance to that of

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the Roman emperor who summoned the Council of Nicea, for he, too, was the murderer of his own family, and has been handed down to posterity, because of the success of the policy of his party, as a great, a virtuous, and a pious sovereign—under his auspices missionaries were sent out in all directions, and monasteries richly endowed were every where established. The singular efficacy of monastic institutions was rediscovered in Europe many centuries subsequently.

In proclaiming the equality of all men in this life, the Buddhists, as we have seen, came into direct collision with the orthodox creed of India, long carried out into practice in the institution of castes—a collision that was embittered by the abhorrence the Buddhists displayed for any distinction between the clergy and laity. To be a Brahman a man must be born one, but a Buddhist priest might voluntarily come from any rank—from the very dregs of society. In the former system marriage was absolutely essential to the ecclesiastical caste; in the latter it was not, for the priestly ranks could be recruited without it. And hence there followed a most important advantage, that celibacy and chastity might be extolled as the greatest of all the virtues. The experience of Europe, as well as of Asia, has shown how powerful is the control obtained by the hierarchy in that way. In India there was, therefore, no other course for the orthodox than to meet the danger with bloody persecutions, and in the end, the Buddhists, expelled from their native seats, were scattered throughout Eastern Asia. Persecution is the mother of proselytes.

The fundamental principle of Buddhism is that there is a supreme power, but no Supreme Being. From this it might be inferred that they who adopt such a creed can not be pantheists, but must be atheists. It is a rejection of the idea of Being, an acknowledgment of that of Force. If it admits the existence of God, it declines him as a Creator. It asserts an impelling power in the universe, a self-existent and plastic principle, but not a self-existent, an eternal, a personal God. It rejects inquiry into first causes as being unphilosophical, and considers that phenomena alone can be dealt with by our finite minds. Not without an air of intellectual majesty, it tolerates the Asiatic time-consecrated idea of a trinity, pointing out one not of a corporeal, but of an impersonal kind. Its trinity is the Past, the Present, the Future. For the sake of aiding our thoughts, it images the Past with his hands folded, since he has attained to rest, but the others with their right hands extended in token of activity. Since he has no God, the Buddhist can not expect absorption; the pantheistic Brahman looks forward to the return of his soul to the Supreme Being as a drop of rain returns to the sea. The Buddhist has no religion, but a ceremonial. How can there be a religion where there is no G

Contest between
the Brahmans
and Buddhists.

Buddhism is founded
on the conception of
Power or Force.

It does not recognize
a personal God,

In all this it is plain that the impersonal and immaterial predominates, and that Gotama is contemplating the existence of pure Force without any association of Substance. He necessarily denies the immediate interposition of any such agency as Providence, maintaining that the system of nature, once arising, must proceed irresistibly according to the laws which brought it into being, and that from this point of view the universe is merely a gigantic engine. To the Brahman priesthood such ideas were particularly obnoxious; they were hostile to any philosophical system founded on the principle that the world is governed by law, for they suspected that its tendency would be to leave them without any mediatory functions, and therefore without any claims on the faithful. Equally does Gotama deny the existence of chance, saying that that which we call chance is nothing but the effect of an unknown, unavoidable cause. As to the external world, we can not tell how far it is a phantasm, how far a reality, for our senses possess no reliable criterion of truth. They convey to the mind representations of what we consider to be external things, by which it is furnished with materials for its various operations; but, unless it acts in conjunction with the senses, the operation is lost, as in that absence which takes place in deep contemplation. It is owing to our inability to determine what share these internal and external conditions take in producing a result that the absolute or actual state of nature is incomprehensible by us. Nevertheless, conceding to our mental infirmity the idea of a real existence of visible nature, we may consider it as offering a succession of impermanent forms, and as exhibiting an orderly series of transmutations, innumerable universes in periods of inconceivable time emerging one after another, and creations and extinctions of systems of worlds taking place according to a primordial law.

Such are his doctrines of a Supreme Force, and of the origin and history of the visible world. With like ability Gotama deals with his inquiry into the nature of man. With Oriental imagery he bids us consider what becomes of a grain of salt thrown into the sea; but, lest we should be deceived herein, he tells us that there is no such thing as individuality or personality—that the Ego is altogether a nonentity. In these profound considerations he brings to bear his conception of force, in the light thereof asserting that all sentient beings are homogeneous. If we fail to follow him in these exalted thoughts, bound down to material ideas by the infirmities of the human constitution, and inquire of him how the spirit of man, which obviously displays so much energy, can be conceived of as being without form, without a past, without a future, he demands of us what has become of the flame of a lamp when it is blown out, or to tell him in what obscure condition it lay before it was kindled. Was it a nonentity? Has it been anni-

hiliated? By the aid of such imagery he tries to depict the nature of existence, and to convey a vivid idea of the metamorphoses it undergoes. Outward things are to him phantasms; the impressions they make on the mind are phantasms too. In this sense he receives the doctrine of transmigration, conceiving of it very much as we conceive of the accumulation of heat successively in different things. In one sense it may be the same heat which occupies such objects one after another, but in another, since heat is force and not matter, there can be no such individuality. Viewed, however, in the less profound way, he is not unwilling to adopt the doctrine of the transmigration of the soul through various forms, admitting that there may accumulate upon it the effect of all those influences, whether of merit or demerit of good or of evil, to which it has been exposed. The vital flame is handed down from one generation to another: it is communicated from one animated form to another. He thinks it may carry with it in those movements the modifications which may have been impressed on it and require opportunity for shaking them off and regaining its original state. At this point the doctrine of Gotama is assuming the aspect of a moral system, and is beginning to suggest means of deliverance from the accumulated evil and consequent demerit to which the spirit has been exposed. He will not, however, recognize any vicarious action. Each one must work out for himself his own salvation, remembering that death is not necessarily a deliverance from worldly ills, it may be only a passage to new miseries. But yet as the light of the super must come at last to an end, so there is at length, though it may be after many transmutations, an end of life. That end he calls Nirwana, a word that has been for nearly three thousand years of solemn import to countless millions of men. Nirwana the end of successive existences, that state which has no relation to matter, or space, or time, to which the departing flame of the extinguished taper has ^{and no thought} gone. It is the supreme end, Nonentity. The attaining of it is the object to which we ought to aspire, and for that purpose we should seek to destroy within ourselves all craving to existence, weaning ourselves from every earthly object, from every earthly pursuit. We should seek to mortify life, to penance, to self-denial, self-mortification, and so gradually learn to sink into perfect quiescence or apathy, a state of that state to which we must come at last and to which, by that preparation, we may all the more rapidly approach. The pantheism of the Hindus expresses absorption in God, the Buddhist having no God, having no existence.

It is thus given to the world two distinct philosophical systems: Vedantism, which takes as its restingpoint the existence of matter, and Buddhism, of which the restingpoint is force. The philosophical ability displayed in the latter is very great; in-

deed it may be doubted whether Europe has produced its metaphysical equivalent. And yet, if I have correctly presented its principles, it will probably appear that its primary conception is not altogether consistently carried out in the development of the details. Great as was the intellectual ability of its author—so great as to extort our profoundest, though it may be reluctant admiration—there are nevertheless moments in which it appears that his movement is becoming wavering and unsteady—that he is failing to handle his ponderous weapon with self-balanced power. This is particularly the case in that point in which he is passing from the consideration of pure force to the unavoidable consideration of visible nature, the actual existence of which he seems to be obliged to deny. But then I am not sure that I have caught with precision his exact train of thought, or have represented his intention with critical correctness. Considering the extraordinary power he elsewhere displays, it is more probable that I have failed to follow his meaning, than that he has been, on the points in question, incompetent to deal with his task.

The works of Gotama, under the title of "Verbal Instructions," are published by the Chinese government in four languages—Thibetan, Mongol, Mantchou, Chinese—from the imperial press at Peking, in eight hundred large volumes. They are presented to the Lama monasteries—a magnificent gift.

In speaking of Vedaism, I have mentioned the manner in which its more elevated conceptions were gradually displaced by those of a base grade coming into prominence; and here it may be useful in like manner to speak of the corresponding debasement of Buddhism. Its practical working was the introduction of an immense monastic system, offering many points of resemblance to the subsequent one of Europe. Since its object was altogether of a personal kind, the attainment of individual happiness, it was not possible that it should do otherwise than engender extreme selfishness. It impressed on each man to secure his own salvation, no matter what became of all others. Of what concern to him were parents, wife, children, friends, country, so long as he attained Nirwana.

Long before Buddhism had been expelled from India by the victorious Brahmins, it had been overlaid with popular ornaments. It had its fables, legends, miracles. Its humble devotees implicitly believed that Mahamaia, the mother of Gotama, an immaculate virgin, conceived him through a divine influence, and that thus he was of the nature of God and man conjoined; that he stood upon his feet and spoke at the moment of his birth; that at five months of age he sat unsupported in the air; that at the moment of his conversion he was attacked by a legion of demons, and that in his penance-fasting he reduced himself to the allowance of one pepper-pod a day; that he had been in-

Displacement of
its higher ideas
by base ones.

Its anthropo-
centric phase
remains, its
philosophical
declining.

Its legends and
miracles.

carnate many times before, and that on his ascension through the air to heaven he left his footprint on a mountain in Ceylon, which is to be worshiped; that there is a paradise of gems, and flowers, and feasts, and music for the good, and a hell of sulphur, and flames, and torment for the wicked; that it is lawful to resort to the worship of images, but that those are in error who deify men, or pay respect to relics; that there are spirits, and goblins, and other superhuman forms; that there is a queen of heaven; that the reading of the Scriptures is in itself an actual merit, whether its precepts are followed or not; that prayer may be offered by saying a formula by rote, or even by turning the handle of a mill from which invocations written on paper issue forth; that the revealer of Buddhism is to be regarded as the religious head of the world.

The reader can not fail to remark the resemblance of these ideas to some of those of the Roman Church. When a knowledge of the Oriental forms of religion was first brought into Europe, and their real origin was not understood, it was supposed that this coincidence had arisen in the labors of Nestorian, or other ancient missionaries from the West, and hopes were entertained that the conversion of Eastern Asia would be promoted thereby. But this expectation was disappointed, and that which many good men regarded as a preparation for Christianity proved to be a stumbling-block in its way. It is not improbable that the pseudo-Christianity of the Chinese revolvers, of which so much has recently been said, is of the same nature, and will end with the same result.

Decorated with these extraneous but popular recommendations, Buddhism has been embraced by four tenths of the human race. It has a prodigious literature, great temples, many monuments. Its monasteries are scattered from the north of Tartary almost to the equinoctial line. In these an education is imparted not unlike that of the European monasteries of the Middle Ages. It has been estimated that in Tartary one third of the population are Lamas. There are single convents containing more than two thousand individuals; the wealth of the country voluntarily pours into them. Elementary education is more widely diffused than in Europe; it is rare to meet with a person who can not read. Among the priests there are many who are devout, and, as might be expected, many who are impostors. It is a melancholy fact that, in China, Buddhism has led the entire population not only into indifferentism, but into absolute godlessness. They have come to regard religion as merely a fashion, to be followed according to one's own taste; that as professed by the state it is a civil institution necessary for the holding of office, and demanded by society, but not to be regarded as of the smallest philosophical importance; that a man is entitled to indulge his views on these matters just as he is entitled to indulge his taste in the color and fashion of his gar-

The great diffusion
of Buddhism.

Its practical
godlessness.

ments; that he has no more right, however, to live without some religious profession than he has a right to go naked. The Chinese can not comprehend how there should be animosities arising on matters of such doubtful nature and trivial concern. The formula under which they live is: "Religions are many; reason is one; we are brothers." They smile at the credulity of the good-natured Tartars, who believe in the wonders of miracle-workers, for they have miracle-workers who can perform the most supernatural cures, who can lick red-hot iron, who can cut open their bowels, and, by passing their hand over the wound, make themselves whole again—who can raise the dead. In China, these miracles, with all their authentications, have descended to the conjuror, and are performed for the amusement of children. The common expressions of that country betray the materialism and indifferentism of the people, and their consequent immorality. "The prisons," they say, "are locked night and day, but they are always full; the temples are always open, and yet there is nobody in them." Of the dead they say, with an exquisite refinement of politeness, "He has saluted the world." The Lazarist Huc, on whose authority many of these statements are made, testifies that they die, indeed, with incomparable tranquillity, just as animals die; and adds, with a bitter, and yet profoundly true sarcasm, they are what many in Europe are wanting to be.

From the theology of India I turn, in the next place, to the civilization of Egypt.

The ancient system of isolation which for many thousand years had been the policy of Egypt was overthrown by Psammetichus about B.C. 670. Up to that time the inhabitants of that country had been shut out from all Mediterranean or European contact by a rigorous exclusion exceeding that until recently practiced in China and Japan. As from the inmates of the happy valley, in Rasselas, no tidings escaped to the outer world, so, to the European, the valley of the Nile was a region of mysteries and marvels. At intervals of centuries, individuals, like Cecrops and Danaus, had fled to other countries, and had attached the gratitude of posterity to their memories for the religion, laws, or other institutions of civilization they had conferred. The traditions connected with them served only to magnify those uncertain legends met with all over Asia Minor, Greece, Italy, Sicily, of the prodigies and miracles that adventurous pirates reported they had actually seen in their stealthy visits to the enchanted valley—great pyramids covering acres of land, their tops rising to the heavens, yet each pyramid nothing more than the tomb-stone of a king; colossi sitting on granite thrones, the images of Pharaohs who lived in the morning of the world, still silently looking upon the land which thousands of years before they had ruled; of these, some, obedient to the

Egypt a mysterious country to Europe.

Its reported wonders.

sun, saluted his approach when touched by his morning rays; obelisks of prodigious height, carved by superhuman skill from a single block of stone, and raised by superhuman power erect on their everlasting pedestals, their faces covered with mysterious hieroglyphs, a language unknown to the vulgar, telling by whom and for what they had been constructed; temples, the massive leaning and lowering walls of which were supported by countless ranges of statues; avenues of sphinxes, through the shadows of which, grim and silent, the portals of fanes might be approached; catacombs containing the mortal remains of countless generations, each corpse awaiting, in mysterious embalment, a future life; labyrinths of many hundred chambers and vaults, into which whoso entered without a clew never again escaped, but in the sameness and solitude of those endless windings found his sepulchre. It is impossible for us to appreciate the sentiment of religious awe with which the Mediterranean people looked upon the enchanted, the hoary, the civilized monarchy on the banks of the Nile. As Bunsen says, "Egypt was to the Greeks a sphinx with an intellectual human countenance."

Her solitude, however, had not been altogether unbroken. After a duration of 1076 years, and the reign of thirty-eight kings, illustrated by the production of the most stupendous works ever accomplished by the hand of man, some of which, as the Pyramids, remain to our times, the old empire, which had arisen from the union of the upper and lower countries, had been overthrown by the Hyksos, or shepherd kings, a race of Asiatic invaders. These, in their turn, had held dominion for more than five centuries, when an insurrection put an end to their power, and gave birth to the new empire, some of the monarchs of which, for their great achievements, are still remembered. In the middle period of this new empire those events in early Hebrew history took place—the visit of Abram and the elevation of Joseph—which are related with such simplicity in the Holy Scriptures. With varied prosperity, the new empire continued until the time of Psammetichus, who, in a civil war, having attained supreme power by the aid of Greek mercenaries, overthrew the time-honored policy of all the old dynasties, and occasioned the first grand impulse in the intellectual life of Europe by opening the ports of Egypt, and making that country accessible to the blue-eyed and red-haired barbarians of the North.

It is scarcely possible to exaggerate the influence of this event upon the progress of Europe. An immense extension of Greek commerce by the demand for the products of the Euxine as well as of the Mediterranean was the smallest part of the result. As to Egypt herself, it entailed a complete change of policy, domestic and foreign. In the employment of the mer-

Its history : the old empire; the Hyksos; the new empire.

Opening of the Egyptian ports.

It compels Egypt to become a maritime state.

cenaries was the cause of the entire emigration of the warrior caste, and in the latter it brought things to such a condition that, if Egypt would continue to exist, she must become a maritime state. Her geographical position for the purposes of commerce was excellent; with the Red Sea to the east and the Mediterranean to the north, she was the natural entrepôt between Asia and Europe, as was shown by the prosperity of Alexandria in later ages. But there was a serious difficulty in the way of her becoming a naval power; no timber suitable for ship-building grew in the country—indeed, scarcely enough was to be found to satisfy the demands for the construction of houses and coffins for the dead. The early Egyptians, like the Hindus, had a religious dread of the sea, but their exclusiveness was, perhaps, not a little dependent on their want of material for ship-building. Egypt was therefore compelled to enter on a career of foreign conquest, and at all hazards possess herself of the timber-growing districts of Syria. It was this urgent necessity which led to her collisions with the Mesopotamian kings, and drew in its train of consequences the sieges, sacks, and captivities of Jerusalem, the metropolis of a little state lying directly between the contending powers, and alternately disturbed by each. Of the necessity of this course of policy in the opinion of the Egyptian kings, we can have no better proof than the fact that Psammetichus himself continued the siege of Azotus for twenty-nine years; that his son Necho reopened the canal between the Nile at Bubastes and the Red Sea at Suez—it was wide enough for two ships to pass—and on being resisted therein by the priests, who feared that it might weaken the country strategically, attempted the circumnavigation of Africa, and actually succeeded in it. In those times such expeditions were not undertaken as mere matters of curiosity. Though this monarch also dispatched investigators to ascertain the sources of the Nile, and determine the causes of its rise, it was doubtless in the hope of making such knowledge of use in a material or economical point of view, and therefore it may be supposed that the circumnavigation of Africa was undertaken upon the anticipated or experienced failure of the advantages expected to arise from the reopening of the canal; for the great fleets which Necho and his father had built could not be advantageously handled unless they could be transferred as circumstances required, either by the circumnavigation or by the canal, from one sea to the other. The time occupied in passing round the continent, which appears to have been three years, rendered the former method of little practical use. But the failure experienced, so far from detracting from the estimation in which we must hold those kings who could thus display such a breadth of conception and vigor of execution, must even enhance it. They resumed the policy of the conqueror Rameses II., who had many centuries before possessed the timber-growing countries, and

and brings on collisions with the Babylonians.

Opening of the Suez Canal.

Circumnavigation of Africa.

whose engineers originally cut the canal from the Nile to the Red Sea, though the work cost 120,000 lives and countless treasuries of money. The canal of Rameses, which, in the course of so many centuries, had become filled up with sand, was thus cleaned out, as it was again in the reign of the Ptolemies, and again under the khalifa, and galleys passed from sea to sea. The Persians, under Darius Hyaspes, also either repaired it, or, as some say, attempted a new work of the kind; but their engineering must have been very defective, for they were obliged to abandon their enterprise after carrying it as far as the bitter lakes, finding that salt water would be introduced into the Delta. The Suez mouth of the canal of Rameses was protected by a system of hydraulic works, to meet difficulties arising from the variable levels both of the Nile and the Red Sea. Well might the Egyptians, whose country was the scene of such prodigious works of civil engineering, smile when the conceited Greeks boasted that Thales had taught them to measure the height of their own Pyramids.

The Egyptian policy continued by Pharaoh Hophra, who succeeded in the capture of Sidon, brought on hostilities with the Babylonian kings, now become thoroughly awakened to what was going on in Egypt—a collision which occasioned the expulsion of the Egyptians from Syria, and the seizure of the lower country by Nebuchadnezzar, who also took vengeance on King Zedekiah for the assistance Jerusalem had rendered to the Africans in their projects: that city was razed

Attempts of the
Assatians on the
south Mediter-
ranean shore.

to the ground, the eyes of the king put out, and the people carried captive to Babylon, B.C. 568. It is a striking exemplification of the manner in which national policy will en-

dure through changes of dynasties, that after the overthrow of Babylon by the Medes, and the transference of power to the Persians, the policy of controlling the Mediterranean was never for an instant lost sight of. Attempts were continually made, by operating alternately on the southern and northern shores, to push to the westward. The subsequent history of Rome shows what would have been the consequences of an uncontrolled possession of the Mediterranean by a great maritime

Egypt overthrown
by Cambyses.

power. On the occasion of a revolt of Egypt, the Persian King Cambyses so utterly crushed and desolated it, that from that day to this, though twenty-four centuries have intervened, it has never been able to recover its independence. The Persian advance on the south shore toward Carthage failed because of the indisposition of the Phœnicians to assist in any operations against that city. We must particularly remark that the ravaging of Egypt by Cambyses was contemporaneous with the cultivation of philosophy in the southern Italian towns—somewhat more than five hundred years before Christ.

Among the incidents occurring during these struggles between the

Egyptian and Babylonian kings there is one deserving to be brought into conspicuous prominence, from the importance of its consequences in European history. It was the taking of Tyre by Nebuchadnezzar. So long as that city dominated in the Mediterranean, it was altogether impossible for Greek maritime power to be developed. The strength of Tyre is demonstrated by her resistance to the whole Babylonian power for thirteen years, until "every head was bald and every shoulder peeled." The place was, in the end, utterly destroyed. It was made as bare as the top of a rock on which the fisherman spreads his nets. The blow thus struck at the heart of Tyrian commerce could not but be felt at the utmost extremities. Well might it be said that "the isles of the sea were troubled at her departure." It was during this time that Greece fairly emerged as a Mediterranean naval power. Nor did the inhabitants of New Tyre ever recover the ancient position. Their misfortunes had given them a rival. A re-establishment in an island on the coast was not a restoration of their supremacy. Carrying out what Greece instinctively felt to be her national policy, one of the first acts of Alexander's Asiatic campaign, two hundred and fifty years subsequently, was the siege of the new city, and, after almost superhuman exertions, its capture, by building a mole from the main land. He literally leveled the place to the ground, a countless multitude was massacred, two thousand persons were crucified, and Tyrian influence disappeared forever from the Mediterranean.

In early Greek history there are, therefore, two leading foreign events: 1st, the opening of the Egyptian ports, B.C. 670; 2d, the downfall of old Tyre, B.C. 573. The effect of the first was chiefly intellectual; that of the second was to permit the commencement of commercial prosperity and give life to Athens.

Foreign epochs in Greek history.

At the dawn of European civilization, Egypt was, therefore, in process of decadence, gradually becoming less and less able to resist its own interior causes of destruction, or the attempts of its Asiatic rivals, who eventually brought it to ruin. At the first historical appearance of the country of the Nile it is hoary and venerable with age. The beautiful Scripture pictures of the journey of Abram and Sarai in the famine, the going down of Joseph, the exodus of the Israelites, all point to a long-settled system, a tranquil and prosperous state. Do we ask any proof of the condition of art to which the Egyptians had attained at the time of their earliest monuments, the masonry of the Great Pyramid, built thirty-four hundred years before Christ, has never yet been surpassed. So accurately was that wonder of the world laid down and constructed, that at this day the variation of the compass may actually be determined by the position of its sides; yet, when Jacob went into Egypt, that pyramid had been built as many centuries as have intervened from the birth of Christ to the present day. If we

Antiquity of civilization and art in Egypt.

turn from the monuments to their inscriptions, there are renewed evidences of antiquity. The hieroglyphic writing had passed through all its stages of formation; its principles had become ascertained and settled long before we gain the first glimpse of it; the decimal and duodecimal systems of arithmetic were in use; the arts necessary in hydraulic engineering, massive architecture, and the ascertainment of the boundaries of land, had reached no insignificant degree of perfection. Indeed, there would be but very little exaggeration in affirming that we are practically as near the early Egyptian ages as was Herodotus himself. Well might the Egyptian priests say to the earliest Greek philosophers, "You Greeks are mere children, talkative and vain; you know nothing at all of the past."

Traces of the prehistoric, premonumental life of Egypt are still preserved in the relics of its language, and the well-known principles of its religion. Of the former, many of the words are referable to Indo-Germanic roots, an indication that the country at an early period must have been conquered from its indigenous African possessors by intrusive expeditions from Asia, and this is supported by the remarkable principles of Egyptian religion. The races of Central Asia had at a very early time attained to the psychical stage of monotheism. Africa is only now emerging from the basest fetichism; the negro priest is still a sorcerer and rain-maker. The Egyptian religion, as is well known, provided for the vulgar a suitable worship of complex idolatry, but for those emancipated from superstition it offered true and even noble conceptions. The coexistence of these apparent incompatibilities in the same faith seems incapable of any other explanation than that of an amalgamation of two distinct systems, just as occurred again many ages subsequently under Ptolemy Soter.

As a critical attention is being bestowed by modern scholars upon Egyptian remains, we learn more truly what is the place in history of that venerable country. It is their boast that the day is not distant when there will be no more difficulty in translating a page of hieroglyphics than in translating one of Latin or Greek. Even now, what a light has been thrown on all branches of ancient literature, science, art, mythology, domestic life, by researches which it may be said commenced only yesterday! From Egypt, it now appears, were derived the prototypes of the Greek architectural orders, and even their ornaments and conventional designs; thence came the models of the Greek and Etruscan vases; thence came many of the ante-Homeric legends—the accusation of the dead, the trial before the judges of hell; the reward and punishment of every man, from the Pharaoh who had descended from his throne to the slave who had escaped from his chain; the dog Cerberus, the Stygian stream, the Lake of Oblivion, the piece of money, Charon and his boat, the fields of Aahlu or Elysium, and the

islands of the blessed; thence came the first ritual for the dead, litanies to the sun, and painted or illuminated missals; thence came the dogma of a queen of heaven. What other country can offer such noble and enduring edifices to the gods; temples with avenues of sphinxes; massive pylons adorned with obelisks in front, which even imperial Rome and modern Paris have not thought it beneath them to appropriate; porticoes and halls of columns, on which were carved the portraits of kings and effigies of the gods? On the walls of the tombs still remain Pthah, the creator, and Neph, the divine spirit, sitting at the potter's wheel, turning clay to form men; and Athor, who receives the setting sun into her arms; and Osiris, the judge of the dead. The granite statues have outlived the gods!

Moreover, the hieroglyphics furnish us with intrinsic evidence that among this people arose the earliest attempts at the per- *The hieroglyphics.* petuation and imparting of ideas by writing. Though doubtless it was in the beginning a mere picture-writing, like that of the Mexicans of our continent, it had already, at the first moment we meet with it, undergone a twofold development—ideographic and phonetic; the one expressing ideas, the other sounds. Under the Macedonian kings the hieroglyphics had become restricted to religious uses, showing conclusively that the old priesthood had never recovered the terrible blows struck against it by Cambyzes and Ochus. From that time forth they were less and less known. It is said that one of the Roman emperors was obliged to offer a reward for the translation of an obelisk. To the early Christian the hieroglyphic inscription was an abomination, as full of the relics of idolatry, and indicating an inspiration of the devil. He defaced the monuments wherever he could make them yield; and we are indebted to the excess of his zeal for hiding the diabolical records on temples consecrated to his use by plastering them over, which has preserved them for us.

In those enigmatical characters an extensive literature once existed, of which the celebrated books of Hermes were perhaps a corruption or a relic; a literature embracing compositions on music, astronomy, cosmogony, geography, medicine, anatomy, chemistry, magic, and many other subjects that have amused the curiosity of man. Yet of those characters the most singular misconceptions have been entertained almost to our own times. Thus, in 1802, Palin thought that the papyri were the Psalms of David done into Chinese, Lenoir that they were Hebrew documents; it was even asserted that the inscriptions in the temple of Denderah were the 100th Psalm, a pleasant ecclesiastical conceit, reminding him who has seen in Egyptian museums old articles of brass and glass, of the story delivered down from hand to hand, that brass was first made at the burning of Corinth, and glass first discovered by shipwrecked mariners, who propped their kettle, while it boiled, on pieces of nitre.

Thousands of years have passed since the foundation of the first Egyptian dynasty. The Pyramids have seen the old empire, the Antiquity of the Egyptian monarchy. Hycksos monarchs, the New Empire, the Persian, the Macedonian, the Roman, the Mohammedan. They have stood while the heavens themselves have changed. They were already "five hundred years old when the Southern Cross disappeared from the horizon of the countries of the Baltic." The pole-star itself is a new-comer to them. Well may Humboldt, referring to these incidents, remark, that "the past seems to be visibly nearer to us when we thus connect its measurement with great and memorable events." No country has had such a varied history as this birthplace of European civilization. Through the darkness of fifty centuries we may not be able to discern the motives of men, but through periods very much longer we can demonstrate the conditions of Nature. If nations, in one sense, depend on the former, in a higher sense they depend on the latter. It was not without reason that the Egyptians took the lead in Mediterranean civilization. Causes of the rise of civilization. The geographical structure of their country surpasses even its hoary monuments in teaching us the conditions under which that people were placed. Nature is a surer guide than the traces of man, whose works are necessarily transitory. The aspect of Egypt has changed again and again; its structure, since man has inhabited it, never. The fields have disappeared, but the land remains.

Why was it that civilization thus rose on the banks of the Nile, and not upon those of the Danube or Mississippi? Civilization depends on climate and agriculture. In Egypt the harvests may ordinarily be foretold and controlled. Of few other parts of the world can the same be said. In most countries the cultivation of the soil is uncertain. From seed-time to harvest, the meteorological variations are so numerous and great, that no skill can predict the amount of yearly produce. Without any premonition, the crops may be cut off by long-continued droughts, or destroyed by too much rain. Nor is it sufficient that a requisite amount of water should fall; to produce the proper effect, it must fall at particular periods. The labor of the farmer is at the mercy of the winds and clouds.

With difficulty, therefore, could a civilized state originate under such circumstances. So long as life is a scene of uncertainty, the hope of yesterday blighted by the realities of to-day, man is the maker of expedients, but not of laws. In his solicitude as to his approaching lot, he has neither time nor desire to raise his eyes to the heavens to watch and record their phenomena; no leisure to look upon himself, and consider what and where he is. In the imperious demand for a present support, he dare not venture on speculative attempts at ameliorating his state; he is doomed to be a helpless, isolated, spell-bound savage, or, if not isolated, the companion of other savages as care-worn as himself. Under

such circumstances, if, however, once the preliminary conditions and momentum of civilization be imparted to him, the very things which have hitherto tended to depress him produce an opposite effect. Instead of remaining in sameness and apathy, the vicissitudes to which he is now exposed urge him onward; and thus it is that, though the civilization of Europe depended for its commencement on the sameness and stability of an African climate, the conquests of Nature which mark its more advanced stage have been made in the trying life of the temperate zone.

There is a country in which man is not the sport of the seasons, in which he need have no anxieties for his future well-being—
 a country in which the sunshines and heats vary very little Agriculture in a rainless country.
 from year to year. In the Thebaid heavy rain is said to be a prodigy. But, at the time when the Dog-star rises with the sun, the river begins to swell; a tranquil inundation by degrees covering the land, at once watering and enriching it. If the Nilometer which measures the height of the flood indicates eight cubits, the crops will be scanty; but if it reaches fourteen cubits, there will be a plentiful harvest. In the spring of the year it may be known how the fields will be in the autumn. Agriculture is certain in Egypt, and there man first became civilized. The date, moreover, furnishes to Africa a food almost without expense. The climate renders it necessary to use, for the most part, vegetable diet, and but little clothing is required. It is said that it costs less than three dollars to raise a child to maturity.

The American counterpart of Egypt in this physical condition is Peru, the coast of which is also a rainless district. Peru is Rainless countries of the West.
 the Egypt of civilization of the Western continent. There is also a rainless strand on the Pacific coast of Mexico. It is an incident full of meaning in the history of human progress, that, in regions far apart, civilization thus commenced in rainless countries.

It is the hydrographic state of Upper Egypt, the cradle of civilization, that interests us. Here the influence of atmospheric water is altogether obliterated, for, in an agricultural point of view, the country is rainless. Variable meteorological conditions are here eliminated.

Where the Nile breaks through the mountain gate at Essouan, it is observed that its waters begin to rise about the end of the Inundations of the Nile.
 month of May, and in eight or nine weeks the inundation is at its height. This flood in the river is due to the great rains which have fallen in the mountainous countries among which the Nile takes its rise, and which have been precipitated from the trade-winds that blow, except where disturbed by the monsoons, over the vast expanse of the tropical Indian Ocean. Thus dried, the east wind pursues its solemn course over the solitudes of Central Africa, a cloudless and a rainless wind, its track marked by desolation and deserts. At first the river becomes red, and then green, because the flood of its great Abyssinian

branch, the Blue Nile, arrives first; but, soon after, that of the White Nile makes its appearance, and from the overflowing banks not only water, but a rich and fertilizing mud, is discharged. It is owing to the solid material thus brought down that the river has raised its own bed in countless ages, and has embanked itself with shelving deposits that descend on either side toward the desert. For this reason it is that the inundation is seen on the edge of the desert first, and, as the flood rises, the whole country up to the river itself is laid under water. By the middle of September the supply begins to fail and the waters abate; by the end of October the stream has returned to its usual limits. The fields are left covered with a fertile deposit, the maximum quantity of which is about six inches thick in a hundred years. It is thought that the bed of the river rises four feet in a thousand years, and the fertilized land in its width continually encroaches on the desert. Since the reign of Amenophis III. it has increased by one third. He lived B.C. 1480. There have accumulated round the pedestal of his Colossus seven feet of mud.

In the recent examinations made by the orders of the Viceroy of Egypt, close by the fallen statue of Rameses II., at Memphis, who reigned, according to Lepsius, from B.C. 1394 to B.C. 1328, a shaft was sunk to more than 24 feet. The water which then infiltrated compelled a resort to boring, which was continued until 41 feet 4½ inches were reached. The whole consisted of Nile deposits, alternate layers of loam and sand of the same composition throughout. From the greatest depth a fragment of pottery was obtained. Ninety-five of these borings were made in various places, but on no occasion was solid rock reached. The organic remains were all recent; not a trace of an extinct fossil occurred, but an abundance of the residues of burnt bricks and pottery. In their examination from Essouan to Cairo, the French estimated the mud deposit to be five inches for each century. From an examination of the results at Heliopolis, Mr. Horner makes it 3.18 inches. The Colossus of Rameses II. is surrounded by a sediment nine feet four inches deep, fairly estimated. Its date of erection was about 3215 years ago, which gives 3½ inches per century. But beneath it similar layers continue to the depth of 30 feet, which, at the same rate, would give 13,500 years, to A.D. 1854, at which time the examination was made. Every precaution seems to have been taken to obtain accurate results.

The extent of surface affected by the inundations of the Nile is, in a geographical point of view, altogether insignificant; yet, such as it was, it constituted Egypt. Commencing at the Cataract of Essouan, at the sacred island of Philæ, on which to this day here and there the solitary palm-tree looks down, it reached to the Mediterranean Sea, from 2° 0' N. to 31° 37' N. The river runs in a valley,

Its geography and topography.

bounded on one side by the eastern and on the other by the Libyan chain of mountains, and of which the average breadth is about seven miles; the arable land, however, not averaging more than five and a half. At the widest place it is ten and three quarters, at the narrowest two. The entire surface of irrigated and fertile land in the Delta is 4500 square miles; the arable land of Egypt, 2255 square miles; and in the Fyoom, 340—a surface quite insignificant, if measured by the American standard, yet it supported seven millions of people.

Here agriculture was so precise that it might almost be pronounced a mathematical art. The disturbances arising from atmospheric conditions were eliminated, and the variations, as connected with the supply of river-water, ascertained in advance. The priests proclaimed how the flood stood on the Nilometer, and the husbandman made corresponding preparations for a scanty or an abundant harvest.

In such a state of things, it was an obvious step to improve upon the natural conditions by artificial means; dikes, and canals, and flood-gates, with other hydraulic apparatus, would, even in the beginning of society, unavoidably be suggested, that in one locality the water might be detained longer; in another, shut off when there was danger of excess; in another, more abundantly introduced.

There followed, as a consequence of this condition of things, the establishment of a strong government, having a direct control over the agriculture of the state by undertaking and supporting these artificial improvements, and sustaining itself by a tax cheerfully paid, and regulated in amount by the quantity of water supplied from the river to each estate. Such, indeed, was the fundamental political system of the country. The first king of the old empire undertook to turn the river into a new channel he made for it, a task which might seem to demand very able engineering, and actually accomplished it. It is more than five thousand years since Menes lived. There must have preceded his times many centuries, during which knowledge and skill had been increasing, before such a work could even have been contemplated.

I shall not indulge in any imaginary description of the manner in which, under such favorable circumstances, the powers of the human mind were developed and civilization arose. In inaccessible security, the inhabitants of this valley were protected on the west by a burning sandy desert, on the east by the Red Sea. Nor shall I say any thing more of those remote geological times when the newly-made river first flowed over a rocky and barren desert on its way to the Mediterranean Sea; nor how, in the course of ages, it had by degrees laid down a fertile stratum, embanking itself in the rich soil it had borne from the tropical mountains. Yet it is none the less true that such was the slow construction of Egypt as a habitable country;

Control of agriculture by the government.

Topographical changes occasioned by the Nile.

such were the gradual steps by which it was fitted to become the seat of man. The pulse of its life-giving artery makes but one beat in a year; what, then, are a few hundreds of centuries in such a process?

The Egyptians had, at an early period, observed that the rising of the Nile coincided with the heliacal rising of Sirius, the Dog-star, and hence they very plausibly referred it to celestial agencies. Men are ever prone to mistake coincidences for causes; and thus it came to pass that the appearance of that star on the horizon at the rising of the sun was not only viewed as the signal, but as the cause of the inundations. Its coming to the desired position might, therefore, be well expected, and it was soon observed that this took place with regularity at periods of about 360 days. This was the first determination of the length of the year. It is worthy of remark, as showing how astronomy and religious rites were in the beginning connected together, that the priests of the mysterious temple of Philæ placed before the tomb of Osiris every morning 360 vases of milk, each one commemorating one day, thus showing that the origin of that rite was in those remote ages when it was thought that the year was 360 days long. It was doubtless such circumstances that led the Egyptians to the cultivation of historical habits. In this they differed from the Hindus, who kept no records of occurrences.

The Dog-star Sirius is the most splendid star in the heavens; to the Egyptian the inundation was the most important event upon earth. Mistaking a coincidence for a cause, he was led to the belief that when that brilliant star emerged in the morning from the rays of the sun, and began to assert its own inherent power, the sympathetic river, moved thereby, commenced to rise. A false inference like this soon dilated into a general doctrine; for if one star could in this way manifest a direct control over the course of terrestrial affairs, why should not another—indeed, why should not all? Moreover, it could not have escaped notice that the daily tides of the Red Sea are connected with the movements and position of the sun and moon, following those luminaries in the time of their occurrence, and being determined by their respective position for amount at spring and at neap. But the necessary result of such a view is no other than the admission of the astrological influence of the heavenly bodies; first, as respects inanimate nature, and then as respects the fortune and fate of men. It is not until the vast distance of the starry bodies is suspected that man begins to feel the necessity of a mediator between him and them, and star-worship passes to its second phase.

To what part of the world could the Egyptian travel without seeing in the skies the same constellations? Far from the banks of the Nile, in the western deserts, in Syria, in Arabia, the stars are the same. They are omnipresent; for we may lose sight of the things of the earth, but

not of those of the heavens. The air of fate-like precision with which their appointed movements are accomplished, their solemn silence, their incomprehensible distances, might satisfy an observer that they are far removed from the influences of all human power, though, perhaps, they may be invoked by human prayer.

Thus star-worship found for itself a plausible justification. The Egyptian system, at its highest development, combined the adoration of the heavenly bodies—the sun, the moon, Venus, etc., with the deified attributes of God. The great and venerable divinities, as Osiris, Pthah, Amun, were impersonations of such attributes, just as we speak of the Creator, the Almighty. It was held that not only has God never appeared upon earth in the human form, but that such is altogether an impossibility, since he is the animating principle of the entire universe, visible nature being only a manifestation of him.

These impersonated attributes were arranged in various trinities, in each of which the third member is a procession from the other two, the doctrine and even expressions in this respect being full of interest to one who studies the gradual development of comparative theology in Europe. Thus from Amun by Maut proceeds Khonso, from Osiris by Isis proceeds Horus, from Neph by Saté proceeds Anouké. While, therefore, it was considered unlawful to represent God except by his attributes, these trinities and their persons offered abundant means of idolatrous worship for the vulgar. It was admitted that there had been terrestrial manifestations of these divine attributes for the salvation of men. Thus Osiris was incarnate in the flesh: he fell a sacrifice to the evil principle, and, after his death and resurrection, became the appointed judge of the dead. In his capacity of President of the West, or of the region of the setting stars, he dwells in the under world, which is traversed by the sun at night.

The Egyptian priests affirmed that nothing is ever annihilated; to die is therefore only to assume a new form. Herodotus says that they were the first to discover that the soul is immortal, their conception of it being that it is an emanation from or a particle of the universal soul, which in a less degree animates all animals and plants, and even inorganic things. Their dogma that there had been divine incarnations obliged them to assert that there had been a fall of man, this seeming to be necessary to obtain a logical argument in justification of prodigies so great. For the relief of the guilty soul, they prescribed in this life fasts and penances, and in the future a transmigration through animals for purification. At death, the merits of the soul were ascertained by a formal trial before Osiris in the shadowy region of Amenti—the under world—in presence of the four genii of that realm, and of forty-two assessors. To this judgment the shade was con-

Principles of Egyptian theology.

God. Trinities and their persons.

Incarnations; fall of man; redemption.

The future judgment.

ducted by Horus, who carried him past Cerberus, a hippopotamus, the gaunt guardian of the gate. He stood by in silence while Anubis weighed his heart in the scales of justice. If his good works preponderated, he was dismissed to the fields of Aahlu—the Elysian Fields; if his evil, he was condemned to transmigration.

But that this doctrine of a judgment in another world might not decline into an idle legend, it was enforced by a preparatory trial in this—a trial of fearful and living import. From the sovereign to the mean-

The trial of the dead.

est subject, every man underwent a sepulchral inquisition. As soon as any one died, his body was sent to the embalmer's, who kept it for forty days, and for thirty-two in addition the family mourned; the mummy, in its coffin, was placed erect in an inner chamber of the house. Notice was then sent to the forty-two assessors of the district; and on an appointed day, the corpse was carried to the sacred lake, of which every nome, and, indeed, every large town, had one toward the west. Arrived on its shore, the trial commenced; any person might bring charges against the deceased, or speak in his behalf; but woe to the false accuser. The assessors then passed sentence according to the evidence before them; if they found an evil life, sepulture was denied, and, in the midst of social disgrace, the friends bore back the mummy to their home, to be redeemed by their own good works in future years; or, if too poor to give it a place of refuge, it was buried on

Origin of the Greek Hades.

the margin of the lake, the culprit ghost waiting and wandering for a hundred years. On these Stygian shores the bones of some are still dug up in our day; they have remained unsepulchred for more than thirty times their predestined century. Even to wicked kings a burial had thus been denied. But, if the verdict of the assessors was favorable, a penny was paid to the boatman Charon for ferryage; a cake was provided for the hippopotamus Cerberus; they rowed across the lake in the baris, or death-boat, the priest announcing to Osiris and the unearthly assessors the good deeds of the deceased. Arriving on the opposite shore, the procession walked in solemn silence, and the mummy was then deposited in its final resting-place—the catacombs.

From this it may be gathered that the Egyptian religion did not remain a mere speculative subject, but was enforced on the people by the

Ceremonies, creeds, oracles, prophecy.

most solemn ceremonies. Moreover, in the great temples, grand processional services were celebrated, the precursors of some that still endure. There were sacrifices of meat-offerings, libations, incense. The national double creed, adapted in one branch to the vulgar, in the other to the learned, necessarily implied mysteries; some of these were avowedly transported to Greece. The machinery of oracles was resorted to. The Greek oracles were of Egyptian origin. So profound was the faith in the oracles that the priests said to their commands that

even the sovereigns were obliged to obey them. It was thus that a warning from the oracle of Amun caused Necho to stop the construction of his canal. For the determination of future events, omens were studied, entrails inspected, and nativities were cast.

CHAPTER IV.

GREEK AGE OF INQUIRY.

RISE AND DECLINE OF PHYSICAL SPECULATION.

IONIAN PHILOSOPHY, commencing from *Egyptian Ideas*, identifies in Water, or Air, or Fire, the *First Principle*.—Emerging from the *Stage of Sorcery*, it founds *Psychology, Biology, Cosmogony, Astronomy*, and ends in doubting whether there is any *Criterion of Truth*.

ITALIAN PHILOSOPHY depends on *Numbers and Harmonies*.—It reproduces the *Egyptian and Hindu Doctrine of Transmigration*.

ELEATIC PHILOSOPHY presents a great *Advance*, indicating a rapid *Approach to Oriental Ideas*.—It assumes a *Pantheistic Aspect*.

RISE OF PHILOSOPHY IN EUROPEAN GREECE—*Relations and Influence of the Mediterranean Commercial and Colonial System*.—Athens attains to *commercial Supremacy*.—Her *vast Progress in Intelligence and Art*.—Her *Demoralization*.—She becomes the *Intellectual Centre of the Mediterranean*.

Commencement of the Athenian higher Analysis.—It is conducted by **THE SOPHISTS**, who reject *Philosophy, Religion, and even Morality, and end in Atheism*.

Political Dangers of the higher Analysis.—*Illustration from the Middle Ages*.

IN Chapter II. I have described the origin and decline of Greek Mythology; in this, I am to relate the first European attempt at philosophizing. The Ionian systems spring directly out of the contemporary religious opinions, and appear as a phase in Greek comparative theology. Origin of Greek philosophy.

Contrasted with the psychical condition of India, we can not but be struck with the feebleness of these first European efforts. They correspond to that moment in which the mind has shaken off its ideas of sorcery, but has not advanced beyond geocentral and anthropocentral conceptions. As is uniformly observed, as soon as man has collected what he considers to be reliable data, he forthwith applies them to a cosmogony, and develops pseudo-scientific systems. It is not until a later period that he awakens to the suspicion that we have no absolute knowledge of truth. Its imperfections.

The reader, who might, perhaps, be repelled by the apparent worthlessness of the succession of Greek opinions now to be described, will find them assume an interest, if considered in the aggregate, or viewed as a series of steps or stages of European approach to conclusions long before arrived at in Egypt and India. Far in advance of any thing that Greece can offer, the intellectual history of India furnishes systems

at once consistent and imposing—systems not remaining useless speculations, but becoming inwoven in social life.

Greek philosophy is considered as having originated with Thales, who, though of Phœnician descent, was born at Miletus, a Greek colony in Asia Minor, about B.C. 640. At that time, as related in the last chapter, the Egyptian ports had been opened to foreigners by Psammetichus. In the civil war which that monarch had been waging with his colleagues, he owed his success to the Ionian and other Greek mercenaries whom he had employed; but, though proving victor in the contest, his political position was such as to compel him to depart from the maxims followed in his country for so many thousand years, and to permit foreigners to have access to it. Hitherto the Europeans had been only known to the Egyptians as pirates and cannibals.

From the doctrine of Thales, it may be inferred that, though he had visited Egypt, he had never been in communication with its sources of learning, but had merely mingled among the vulgar, from whom he had gathered the popular notion that the first principle is water. The state of things in Egypt suggests that this primitive dogma of European philosophy was a popular notion in that country. With but little care on the part of men, the fertilizing Nile-water yielded those abundant crops which made Egypt the granary of the Old World. It might therefore be said, both philosophically and facetiously, that the first principle of all things is water. The harvests depended on it, and, through them, animals and man. The government of the country was supported by it, for the financial system was founded on a tax paid by the proprietors of the land for the use of the public sluices and aqueducts. There was not a peasant to whom it was not apparent that water is the first principle of all things, even of taxation; and, since it was not only necessary to survey lands to ascertain the surface that had been irrigated, but to redetermine their boundaries after the subsidence of the flood, even the scribes and surveyors might concede that geometry itself was indebted for its origin to water.

If, therefore, in any part of the Old World, this doctrine had both a vulgar and a philosophical significance, that country was Egypt. We may picture to ourselves the inquisitive but ill-instructed Thales carried in some pirate-ship or trading-bark to the mysterious Nile, respecting which Ionia was full of legends and myths. He saw the aqueducts, canals, flood-gates, the great Lake Mœris, dug by the hand of man as many ages before his day as have elapsed from his day to ours; he saw on all sides the adoration paid to the river, for it had actually become deified; he learned from the vulgar, with whom he alone came in contact, their universal belief that all things arise from water—
Thales asserts that water is the first principle. if, had he ever been taught by the

priests, we should have found traces in his system of the doctrines of emanation, transmigration, and absorption, imported into Greece in later times. We may interpret the story of Thales on the principles which would apply in the case of some intelligent Indian who should find his way to the outposts of a civilized country. Imperfectly acquainted with the language, and coming in contact with the lower class alone, he might learn their vulgar philosophy, and carry back the fancied treasure to his home.

As to the profound meaning some have been disposed to extract from the dogma of Thales, we shall, perhaps, be warranted in rejecting it altogether. It has been affirmed that he attempted to concentrate all supernatural powers in one; to reduce all possible agents to unity; in short, out of polytheism to bring forth monotheism; to determine the invariable in the variable; and to ascertain the beginning of things: that he observed how infinite is the sea; how necessary moisture is to growth; nay, even how essential it was to the well-being of himself; "that without moisture his own body would not have been what it was, but a dry husk falling to pieces." Nor can we adopt the opinion that the intention of Thales was to establish a coincidence between philosophy and the popular theology as delivered by Hesiod, who affirms that Oceanus is one of the parent-gods of Nature. The imputation of irreligion made against him shows at what an early period the antagonism of polytheism and scientific inquiry was recognized. But it is possible to believe that all things are formed out of one primordial substance, without denying the existence of a creative power. Or, to use the Indian illustration, the clay is not the potter.

Thales is said to have predicted the solar eclipse which terminated a battle between the Medes and Lydians, but it has been suggestively remarked that it is not stated that he predicted the day on which it should occur. He had an idea that warmth originates from or is Other doctrines of Thales. nourished by humidity, and that even the sun and stars derived their aliment out of the sea at the time of their rising and setting. Indeed, he regarded them as living beings; obtaining an argument from the phenomena of amber and the magnet, supposed by him to possess a living soul, because they have a moving force. Moreover, he taught that the whole world is an insouled thing, and that it is full of demons. Thales had, therefore, not completely passed out of the stage of sorcery.

His system obtained importance not only from its own plausibility, but because it was introduced under favorable auspices and at a favorable time. It came into Asia Minor as a portion of the wisdom of Egypt, and therefore with a prestige sufficient to assure for it an attentive reception. But this would have been of little avail had not the mental culture of Ionia been advanced to a degree suitable for offering to it conditions of development. Under such circumstances the Egyptian dogma formed the starting-point for a special method of philosophizing.

The manner in which that development took place illustrates the vig-
They constitute the starting-point of Ionian philosophy. or of the Grecian mind. In Egypt a doctrine might exist for thousands of years, protected by its mere antiquity from controversy or even examination, and hence sink with the lapse of time into an ineffectual and lifeless state; but the same doctrine brought into a young community full of activity would quickly be made productive and yield new results. As seeds taken from the coffins of mummies, wherein they have been shut up for thousands of years, when placed under circumstances favorable for development in a rich soil, and supplied with moisture, have forthwith, even in our own times, germinated, borne flowers, and matured new seeds, so the rude philosophy of Thales passed through a like development. Its tendency is shown in the attempt it at once made to describe the universe, even before the parts thereof had been determined.

But it is not alone the water or ocean that seems to be infinite, and capable of furnishing a supply for the origin of all other things. The air, also, appears to reach as far as the stars. On it, as Anaximenes of Miletus remarks, "the very earth itself floats like a broad leaf." Accordingly, this Ionian, stimulated doubtless by the hope of sharing in or succeeding to the celebrity that Thales had enjoyed for a century, proposed to substitute for water, as the primitive source of things, atmospheric air. And, in truth, there seem to be reasons for bestowing upon it such a pre-eminence. To those who have not looked closely into the matter, it would appear that water itself is generated from it, as when clouds are formed, and from them rain-drops, and springs, and fountains, and rivers, and even the sea. He also attributes infinity to it, a dogma scarcely requiring any exercise of the imagination, but being rather the expression of an ostensible fact; for who, when he looks upward, can discern the boundary of the atmosphere. Anaximenes also held that even the human soul itself is nothing but air, since life consists in inhaling and exhaling it, and ceases as soon as that process stops. He taught also that warmth and cold arise from mere rarefaction and condensation, and gave as a proof the fact that when we breathe with the lips drawn together the air is cold, but it becomes warm when we breathe through the widely-opened mouth. Hence he concluded that, with a sufficient rarefaction, air might turn into fire, and that this probably was the origin of the sun and stars, blazing comets, and other meteors; but if by chance it should undergo condensation, it would turn into wind and clouds, or, if that operation should be still more increased, into water, snow, hail, and, at last, even into earth itself. And since it is seen from the results of breathing that the air is a life-giving principle to man, nay, even is ac-
The air is God. tually his soul, it would appear to be a just inference that the infinite air is God, and that the gods and goddesses have sprung from it.

Such was the philosophy of Anaximenes. It was the beginning of that stimulation of activity by rival schools which played so distinguished a part in the Greek intellectual movement. Its superiority over the doctrine of Thales evidently consists in this, that it not only assigns a primitive substance, but even undertakes to show by observation and experiment how others arise from it, and transformations occur. As to the discovery of the obliquity of the ecliptic by the aid of a gnomon imputed to Anaximenes, it was merely a boast of his vainglorious countrymen. It was altogether beyond the scientific grasp of one who had no more exact idea of the nature of the earth than that it was "like a broad leaf floating in the air."

The doctrines of Anaximenes received a very important development in the hands of Diogenes of Apollonia, who asserted that all things originate from one essence, which, undergoing continual changes, becoming different at different times, turns back again to the same state. He regarded the entire world as a living being, spontaneously evolving and transforming itself, and agreed with Anaximenes that the soul of man is nothing but air, as is also the soul of the world. From this it follows that the air must be eternal, imperishable, and endowed with consciousness. "It knows much; for without reason it would be impossible for all to be arranged so duly and proportionately as that all should maintain its fitting measure, winter and summer, night and day, the rain, the wind, and fair weather; and whatever object we consider will be found to have been ordered in the best and most beautiful manner possible." "But that which has knowledge is that which men call air; it is it that regulates and governs all, and hence it is the use of air to pervade all, and to dispose all, and to be in all, for there is nothing that has not part in it."

The early cultivator of philosophy emerges with difficulty from fetichism. The harmony observed among the parts of the world is easily explained on the hypothesis of a spiritual principle residing in things, and arranging them by its intelligent volition. It is not at once that he rises to the conception that all this beauty and harmony are due to the operation of law. We are so prone to judge of the process of external things from the modes of our own personal experience, our acts being determined by the exercise of our will, that it is with difficulty we disentangle ourselves from such notions in the explanation of natural phenomena. Fetichism may be observed in the infancy of many of the natural sciences. Thus the electrical power of amber was imputed to a soul residing in that substance, a similar explanation being also given of the control of the magnet over iron. The movements of the planetary bodies, Mercury, Venus, Mars, were attributed to an intelligent principle residing in each, guiding and controlling the motions, and ordering all things for the best. It was an epoch in

Diogenes asserts that air is the soul of the world.

Difficulty of rising above fetichism.

the history of the human mind when astronomy set an example to all other sciences of shaking off its fetichism, and showing that the intricate movements of the heavenly bodies were all capable not only of being explained, but even foretold, if once was admitted the existence of a simple, yet universal, invariable, and eternal law.

Astronomy and chemistry have passed beyond the fetich stage.

Not without difficulty do men perceive that there is nothing inconsistent between invariable law and endlessly varying phenomena, and that it is a more noble view of the government of this world to impute its order to a penetrating primitive wisdom, which could foresee consequences throughout a future eternity, and provide for them in the original plan at the outset, than to invoke the perpetual intervention of an ever-acting spiritual agency for the purpose of warding off misfortunes that might happen, and setting things to rights. Chemistry, in like manner, furnishes us with a striking example—an example very opportune in the case we are considering—of the doctrine of Diogenes of Apollonia, that the air is actually a spiritual being; for, on the discovery of several of the gases by the earlier experimenters, they were not only regarded as of a spiritual nature, but actually received the name under which they pass to this day, gheist or gas, from a belief that they were ghosts. If a laborer descended into a well and was suffocated, as if struck dead by some invisible hand; if a lamp lowered down burnt for a few moments with a lurid flame, and was then extinguished; if, in a coal mine, when the unwary workman exposed a light, on a sudden the place was filled with flashing flames and thundering explosions, tearing down the rocks and destroying every living thing in the way, often, too, without leaving on the dead any marks of violence; what better explanation could be given of such catastrophes than to impute them to some supernatural agent? Nor was there any want, in those times, of well-authenticated stories of unearthly faces and forms seen in such solitudes.

The modification made by Diogenes in the theory of Anaximenes, by converting it from a physical into a psychological system, is important, as marking the beginning of the special philosophy of Greece. The investigation of the intellectual development of the universe led Greeks to the study of the intellect itself. In his special doctrine, Diogenes imputed the changeability of the air to its mobility; a property in which he thought it excelled all other substances, because it is among the rarest or thinnest of the elements. It is, however, said by some, who are disposed to transcendentalize his doctrine, that he did not mean the common atmospheric air, but something more attenuated and warm; and since, in its purest state, it constitutes the most perfect intellect, inferior degrees of reason must be owing to an increase of its density and moisture. Upon this principle, the whole earth is ani-

Origin of psychology.

mated by the breath of life; the souls of the brutes, which differ from one another so much in intelligence, are only air in its various conditions of moisture and warmth. He explained the production of the world through condensation of the earth by cold from air, the warmth rising upward and forming the sun; in the stars he thought he recognized the respiratory organs of the world. From the preponderance of moist air in the constitution of brutes, he inferred that they were, like the insane, incapable of thought, for thickness of the air impedes respiration, and therefore quick apprehension. From the fact that plants have no cavities wherein to receive the air, and are altogether unintelligent, he was led to the principle that the thinking power of man arises from the flowing of that substance throughout the body in the blood. He also explained the superior intelligence of men from their breathing a purer air than the beasts, which carry their nostrils near the ground. In these crude and puerile speculations we have the beginning of mental philosophy.

I can not dismiss the system of the Apollonian without setting in contrast with it the discoveries of modern science respecting the relations of the air. Modern discoveries as to the relations of the air. Toward the world of life it stands in a position of wonderful interest. Decomposed into its constituents by the skill of chemistry, it is no longer looked upon as a homogeneous body; its ingredients have not only been separated, but the functions they discharge have been ascertained. From one of these, carbonic acid, all the various forms of plants arise; that substance being decomposed by the rays of the sun, and furnishing to vegetables carbon, their chief solid ingredient. For this it may be said, that all those beautifully diversified organic productions, from the mosses of the icy regions to the characteristic palms of the landscapes of the tropics—all those we cast away as worthless weeds, and those for the obtaining of which we expend the sweat of our brow—all, without any exception, are obtained from the atmosphere by the influence of the sun. And since without plants the life of animals could not be maintained, they constitute the means by which the aerial material, Dependence of animals and plants. vivified, as it may be said, by the rays of the sun, is conveyed even into the composition of man himself. As food, they serve to repair the wastes of the body necessarily occasioned in the acts of moving and thinking. For a time, therefore, these ingredients, once a part of the structure of plants, enter as essential constituents in the structure of animals. Yet it is only in a momentary way, for the essential condition of animal activity is that there shall be unceasing interstitial death; not a finger can be lifted without the waste of muscular material; not a thought arise without the destruction of cerebral substance. From the animal system the products of decay are forthwith removed, often by mechanisms of the most exquisite construction; but their uses are not

ended, for sooner or later they find their way back again into the air, and again serve for the origination of plants. It is needless to trace these changes in all their details; the same order or cycle of progress holds good for the water, the ammonia; they pass from the inorganic to the living state, and back to the inorganic again; now the same particle is found in the air, next aiding in the composition of a plant, then in the body of an animal, and back in the air once more. In this perpetual revolution material particles run, the dominating influence determining and controlling their movement being in that great centre of our system, the sun. From him, in the summer days, plants receive, and, as it were, store up that warmth which, at a subsequent time, is to reappear in the glow of health of man, or to be rekindled in the blush of shame, or to consume in the burning fever. Nor is there any limit of time. The heat we derive from the combustion of stubble came from the sun as it were only yesterday; but that with which we moderate the rigor of winter when we burn anthracite or bituminous coal was also derived from the same source in the ultra-tropical climate of the secondary times, perhaps a thousand centuries ago.

In such perpetually recurring cycles are the movements of material things accomplished, and all takes place under the dominion of invariable law. The air is the source whence all organisms have come; it is the receptacle to which they all return. Its parts are awakened into life, not by the influence of any terrestrial agency or principle concealed in itself, as Diogenes supposed, but by a star which is a hundred millions of miles distant, the source direct or indirect of every terrestrial movement, and the dispenser of light and life.

To Thales and Diogenes, whose primordial elements were water and air respectively, we must add Heraclitus of Ephesus, who maintained that the first principle is fire. He illustrated the tendency which Greek philosophy had already assumed of opposition to Polytheism and the idolatrous practices of the age. It is said that in his work, ethical, political, physical, and theological subjects were so confused, and so great was the difficulty of understanding his meaning, that he obtained the surname of "the Obscure." In this respect he has had among modern metaphysicians many successors. He founds his system, however, upon the simple axiom that "all is convertible into fire, and fire into all." Perhaps by the term fire he understood what is at present meant by heat, for he expressly says that he does not mean flame, but something merely dry and warm. He considered that this principle is in a state of perpetual activity, forming and absorbing every individual thing. He says, "All is and is not; for, though it does in truth come into being, yet it forthwith ceases to be." "No one has ever been twice on the same stream, for different waters are constantly flowing down. It dissipates its waters and gath-

Agency of
the sun.

Heraclitus as-
serts that fire
is the first
principle.

The fictitious per-
manence of suc-
cessive forms.

ers them again, it approaches and recedes, overflows and fails." And to teach us that we ourselves are changing and have changed, he says, "On the same stream we embark and embark not, we are and we are not." By such illustrations he implies that life is only an unceasing motion, and we can not fail to remark that the Greek turn of thought is fast following that of the Hindu.

But Heraclitus totally fails to free himself from local conceptions. He speaks of the motion of the primordial principle in the upward and downward directions, in the higher and lower regions. He says that the chief accumulation thereof is above, and the chief deficiency below, and hence he regards the soul of man as a portion of fire migrated from heaven. He carries his ideas of the transitory nature of all phenomena to their last consequences, and illustrates the noble doctrine that all which appears to us to be permanent is only a regulated and self-renewing concurrence of similar and opposite motions by such extravagances as that the sun is daily destroyed and renewed.

In the midst of many wild physical statements many true axioms are delivered. "All is ordered by reason and intelligence, though all is subject to Fate." Already he perceived what the meta-
Physical and physiological doctrines of Heraclitus.
 physicians of our own times are illustrating, that "man's mind can produce no certain knowledge from its own interior resources alone." He regarded the organs of sense as being the channels through which the outer life of the world, and therewith truth, enters into the mind, and that in sleep, when the organs of sense are closed, we are shut out from all communion with the surrounding universal spirit. In his view every thing is animated and insouled, but to different degrees, organic objects being most completely or perfectly. His astronomy may be anticipated from what has been said respecting the sun, which he moreover regarded as being scarcely more than a foot in diameter, and, like all other celestial objects, a mere meteor. His moral system was altogether based upon the physical, the fundamental dogma being the excellence of fire. Thus he accounted for the imbecility of the drunkard by his having a moist soul, and drew the inference that a warm or dry soul is the wisest and best; with a justifiable patriotism asserting that the noblest souls must belong to a climate that is dry, intending thereby to indicate that Greece is man's fittest and truest country. There can be no doubt that in Heraclitus there is a strong tendency to the doctrine of a soul of the world. If the divinity is undistinguishable from heat, whither can we go to escape its influences? And in the restless activity and incessant changes it produces in every thing within our reach, do we not recognize the tokens of the illimitable and unshackled?

I have lingered on the chief features of the early Greek philosophy as exhibited in the physical school of Ionia. They serve to impress upon us its intrinsic imperfection. It is a mixture of the physical, met-

apophysical, and mystical, which, upon the whole, has no other value to us than this, that it shows us how feeble were the beginnings of our knowledge—that we commenced with the importation of a few vulgar errors from Egypt. In presence of the utilitarian philosophy of that country and the theology of India, how vain and even childish are these germs of science in Greece! Yet this very imperfection is not without its use, since it warns us of the inferior position in which we stand as respects the time of our civilization when compared with those ancient states, and teaches us to reject the doctrine which so many European scholars have wearied themselves in establishing, that Greece led the way to all human knowledge of any value. Above all, it impresses upon us more appropriate, because more humble views of our present attainments and position, and gives us to understand that other races of men not only preceded us in intellectual culture, but have equaled, and perhaps surpassed every thing that we have yet done in mental philosophy.

Of the other founders of Ionic sects it may be observed that, though they gave to their doctrines different forms, the method of reasoning was essentially the same in them all. Of this a better illustration could not be given than in the philosophy of Anaximander of Miletus, who was contemporary with Thales. He started with the postulate that things arose by separation from a universal mixture of all: Anaximander's doctrine of the Infinite. his primordial principle was therefore chaos, though he veiled it in the metaphysically obscure designation "The Infinite." The want of precision in this respect gave rise to much difference of opinion as to his tenets. To his chaos he imputed an internal energy, by which its parts spontaneously separated from each other; to those parts he imputed absolute unchangeability. He taught that the earth is of a cylindrical form, its base being one third of its altitude; it is retained in the centre of the world by the air in an equality of distance from all the boundaries of the universe; that the fixed stars and planets revolved round it, each being fastened to a crystalline ring; and beyond them, in like manner, the moon, and, still farther off, the sun. He conceived of an opposition between the central and circumferential regions, the former being naturally cold, and the latter hot: indeed, in his opinion, the settling of the cold parts to the centre, and the ascending of the hot, gave origin, respectively, to the formation of the earth and shining celestial bodies; the latter first existing as a complete shell or sphere, which, undergoing destruction, broke up into stars. Already we perceive the tendency of Greek philosophy to shape itself into systems of cosmogony, founded upon the disturbance of the electric matter by heat and cold. Nay, more, Anaximander explained the origin of living creatures on like principles, for the sun's heat acting upon the primal miry earth, produced filmy bladders

or bubbles, and these, becoming surrounded with a prickly rind, at length burst open, and, as from an egg, animals came forth. At first they were ill formed and imperfect, but subsequently elaborated and developed. As to man, so far from being produced in his perfect shape, he was ejected as a fish, and under that form continued in the muddy water until he was capable of supporting himself on dry land. Besides "the Infinite" being thus the cause of generation, it was also the cause of destruction: "things must all return whence they came, according to destiny, for they must all, in order of time, undergo due penalties and expiations of wrong-doing." This expression obviously contains a moral consideration, and is an exemplification of the commencing feeble interconnection between physical and moral philosophy.

As to the more solid discoveries attributed to this philosopher, we may dispose of them in the same manner that we have dealt with the like facts in the biographies of his predecessors—they are idle inventions of his vainglorious countrymen. That he was the first to make maps is scarcely consistent with the well-known fact that the Egyptians had cultivated geometry for that express purpose thirty centuries before he was born. As to his inventing sun-dials, the shadow had gone back on that of Ahaz a long time before. In reality, the sun-dial was a very ancient Oriental invention. And as to his being the first to make an exact calculation of the size and distance of the heavenly bodies, it need only be remarked that those who have so greatly extolled his labors must have overlooked how incompatible such discoveries are with a system which assumes that the earth is cylindrical in shape, and kept in the midst of the heavens by the atmosphere; that the sun is farther off than the fixed stars; and that each of the heavenly bodies is made to revolve by means of a crystalline wheel.

The philosopher whose views we have next to consider is Anaxagoras of Clazomene, the friend and master of Pericles, Euripides, and Socrates. Like several of his predecessors, he had visited Egypt. Among his disciples were numbered some of the most eminent men of those times.

The fundamental principle of his philosophy was the recognition of the unchangeability of the universe as a whole, the variety of forms that we see being produced by new arrangements of its constituent parts. Such a doctrine includes, of course, the idea of the eternity of matter. Anaxagoras says, "Wrongly do the Greeks suppose that aught begins or ceases to be, for nothing comes into being or is destroyed, but all is an aggregation or secretion of pre-existent things, so that all-becoming might more correctly be called becoming-mixed, and all corruption becoming-separate." In such a statement we can not fail to remark that the Greek is fast passing into the track of the Egyptian and the Hindu. In some respects his views re-

Anaxagoras teaches the unchangeability of the universe.

call those of the chaos of Anaximander, as when he says, "Together were all things infinite in number and smallness; nothing was distinguishable. Before they were sorted, while all was together, there was no quality noticeable." To the first moving force which ar-

The primal intellect.

ranged the parts of things out of the chaos, he gave the designation of "the Intellect," rejecting Fate as an empty name, and imputing all things to Reason. He made no distinction between the Soul and Intellect. His tenets evidently include a dualism indicated by the moving force and the moved mass, an opposition between the corporeal and mental. This indicated that for philosophy there are two separate routes, the physical and intellectual. While Reason is thus the prime mover in his philosophy, he likewise employed many subordinate agents in the government of things—for instance, air, water, and fire, being evidently unable to explain the state of nature in a satisfactory way by the operation of the Intellect alone. We recognize in the de-

Cosmogony of Anaxagoras.

tails of his system ideas derived from former ones, such as the settling of the cold and dense below, and the rising of the warm and light above. In the beginning the action of Intellect was only partial; that which was primarily moved was only imperfectly sorted, and contained in itself the capability of many separations. From this point his system became a cosmogony, showing how the elements and fogs, stones, stars, and the sea, were produced. These explanations, as might be anticipated, have no exactness. Among his primary elements are many incongruous things, such as cold, color, fire, gold, lead, corn, marrow, blood, etc. This doctrine implied that in compound things there was not a formation, but an arrangement. It required, therefore, many elements instead of a single one. Flesh is made of fleshy particles, bones of bony, gold of golden, lead of leaden, wood of wooden, etc. These analogous constituents are homœomeriæ. Of an infinite number of kinds, they composed the infinite all, which is a mixture of them. From such conditions Anaxagoras proves that all the parts of an animal body pre-exist in the food, and are merely collected therefrom. As to the phenomena of life, he explains it on his doctrine of dualism between mind and matter; he teaches that sleep is produced by the reaction of the latter on the former. Even plants he regards as only rooted animals, motionless, but having sensations and desires; he imputes the superiority of man to the mere fact of his having hands. He explains our mental perceptions upon the hypothesis that we have naturally within us the contraries of all the qualities of external things; and that, when we consider an object, we become aware of the preponderance of those qualities in our mind which are deficient in them. Hence all sensation is attended with pain. His doctrine of the production of animals was founded on the action of the sunlight on the miry earth. The earth he places in the centre of the world, whither it was carried

by a whirlwind, the pole being originally in the zenith; but, when animals issued from the mud, its position was changed by the Intellect, so that there might be suitable climates. In some particulars his crude guesses present amusing anticipations of subsequent discoveries. Thus he maintained that the moon has mountains, valleys, and inhabitants like the earth; that there have been grand epochs in the history of our globe, in which it has been successively modified by fire and water; that the hills of Lampsacus would one day be under the sea, if time did not too soon fail.

As to the nature of human knowledge, Anaxagoras asserted that by the Intellect alone do we become acquainted with the truth, the senses being altogether unreliable. He illustrated this by putting a drop of colored liquid into a quantity of clear water, the eye being unable to recognize any change. Upon such principles also he asserted that snow is not white, but black, since it is composed of water, of which the color is black; and hence he drew such conclusions as that "things are to each man according as they seem to him." It was doubtless the recognition of the unreliability of the senses that extorted from him the well-known complaint: "Nothing can be known; nothing can be learned; nothing can be certain; sense is limited; intellect is weak; life is short."

The biography of Anaxagoras is not without interest. Born in affluence, he devoted all his means to philosophy, and in his old age encountered poverty and want. He was accused by the superstitious Athenian populace of Atheism and impiety to the gods, since he asserted that the sun and moon consist of earth and stone, and that the so-called divine miracles of the times were nothing more than common natural effects. For these reasons, and also because of the Magianism of his doctrine—for he taught the antagonism of mind and matter, a dogma of the detested Persians—he was thrown into prison, condemned to death, and barely escaped through the influence of Pericles. He fled to Lampsacus, where he ended his days in exile. His vainglorious countrymen, however, conferred honor upon his memory in their customary exaggerated way, boasting that he was the first to explain the phases of the moon, the nature of solar and lunar eclipses, that he had the power of foretelling future events, and had even predicted the fall of a meteoric stone.

From the biography of Anaxagoras, as well as of several of his contemporaries and successors, we may learn that a popular opposition was springing up against philosophy, not limited to a mere social protest, but carried out into political injustice. The antagonism between learning and Polytheism was becoming every day more distinct. Of the philosophers, some were obliged to fly into exile, some suffered death. The natural result of such a state of things was to force them to practice con-

cealment and mystification, as is strikingly shown in the history of the Pythagoreans.

Of Pythagoras, the founder of this sect, but little is known with certainty; even the date of his birth is contested. Probably he Pythagoras, biography of. was born at Samos about B.C. 540. If we were not expressly told so, we should recognize from his doctrines that he had been in Egypt and India. Some eminent scholars, who desire on all occasions to magnify the learning of ancient Europe, depreciate as far as they can the universal testimony of antiquity that such was the origin of the knowledge of Pythagoras, asserting that the constitution of the Egyptian priesthood rendered it impossible for a foreigner to become initiated. They forget that the ancient system of that country had been totally destroyed in the great revolution which took place more than a century before those times. If it were not explicitly stated by the ancients that Pythagoras lived for twenty-two years in Egypt, there is sufficient internal evidence in his story to prove that he had been there for a long time. Just as a connoisseur can detect the hand of a master by the style of a painting, so one who has devoted attention to the old systems of thought sees the Egyptian in the philosophy of Pythagoras at a glance.

He passed into Italy during the reign of Tarquin the Proud, and settled at Crotona, a Greek colonial city on the Bay of Tarentum. At first he established a school, but, favored by local dissensions, he gradually organized from the youth who availed themselves of his instructions a secret political society. Already it had passed into a maxim among the learned Greeks that it is not advantageous to communicate knowledge too freely to the people—a bitter experience in persecutions seemed to demonstrate that the maxim was founded in truth. The step from a secret philosophical society to a political conspiracy is but short. Pythagoras appears to have taken it. The disciples who were admitted to his scientific secrets after a period of probation and process of examination constituted a ready instrument of intrigue against the state, the issue of which, after a time, appeared in the supplanting of the ancient senate and the exaltation of Pythagoras and his club to the administration of government. The actions of men in all times are determined by similar principles; and as it would be now with such a conspiracy, so it was then; for, though the Pythagorean influence spread from Crotona to other Italian towns, an overwhelming reaction soon set in, the innovators were driven into exile, their institutions destroyed, and their founder fell a victim to his enemies.

The organization attempted by the Pythagoreans is an exception to the general policy of the Greeks. The philosophical schools had been merely points of reunion for those entertaining similar opinions; but in the state they can hardly be regarded as having had any political existence.

It is difficult, when the political or religious feelings of men have been engaged, to ascertain the truth of events in which they have been concerned; deception, and even falsehood, seem to be licensed. In the midst of the troubles befalling Italy as the consequence of these Pythagorean machinations, it is impossible to ascertain facts with certainty. One party exalts Pythagoras to a superhuman state; it pictures him majestic and impassive, clothed in robes of white, with a golden coronet around his brows, listening to the music of the spheres, or seeking relaxation in the more humble hymns of Homer, Hesiod, and Thales; lost in the contemplation of Nature, or rapt in ecstasy in his meditations on God; manifesting his descent from Apollo or Hermes by the working of miracles, predicting of future events, and convers- *His miracles.* ing with genii in the solitude of a dark cavern, and even surpassing the wonder of speaking simultaneously in different tongues, since it was established, by the most indisputable testimony, that he had accomplished the prodigy of being present with and addressing the people in several different places at the same time. It seems not to have occurred to his disciples that such preposterous assertions can not be sustained by any evidence whatsoever; and that the stronger and clearer such evidence is, instead of supporting the fact for which it is brought forward, it only serves to shake our confidence in the truth of man, or impresses on us the conclusion that he is easily led to the adoption of falsehood, and is readily deceived by imposture.

By his opponents he was denounced as a quack, or, at the best, a visionary mystic, who had deluded the young with the mum- *His character.* meries of a free-masonry; had turned the weak-minded into shallow enthusiasts and grim ascetics; that he had conspired against a state which had given him an honorable refuge, and had brought disorder and bloodshed upon it. Between such contradictory statements, it is difficult to determine how much we should impute to the philosopher and how much to the trickster. In this uncertainty, the Pythagoreans reap the fruit of one of their favorite maxims, "Not unto all should all be made known." Perhaps at the bottom of these political movements lay the hope of establishing a central point of union for the numerous Greek colonies of Italy, which, though they were rich and highly civilized, were, by reason of their isolation and antagonism, essentially weak. Could they have been united together in a powerful federation by the aid of some political or religious bond, they might have exerted a singular influence on the rising fortunes of Rome, and thereby on humanity. Pythagorism did indeed exert an influence on Rome, but it was in a different way, through Numa, the second king, who was of this sect, and who introduced into the Roman system many Pythagorean rites.

The fundamental dogma of the Pythagoreans was that "number is

Pythagoras asserts that number is the first principle. the essence or first principle of things." It led them at once to the study of the mysteries of figures and of arithmetical relations, and plunged them into the wildest fantasies when it took the absurd form that numbers are actually things.

The approval so generally expressed for the doctrines of Pythagoras was doubtless very much due to the fact that they supplied an intellectual void. Those who had been in the foremost ranks of philosophy had come to the conclusion that, as regards external things, and even ourselves, we have no criterion of truth; but in the properties of numbers and their relations, such a criterion does exist.

It would scarcely repay the reader to pursue this system in its details; a very superficial representation of it is all that is necessary for our purpose. It recognizes two species of numbers, the odd and even; and since one, or unity, must be at once both odd and even, it must be the very essence of number, and the ground of all other numbers; hence the meaning of the Pythagorean expression, "All comes from one;" which also took form in the mystical allusion, "God embraces all and actuates all, and is but one." To the number ten extraordinary importance was imputed, since it contains in itself, or arises from the addition of, 1, 2, 3, 4—that is, of even and odd numbers together; hence it received the name of the grand tetractys, because it so contains the first four numbers. Some, however, assert that that designation was imposed

Pythagorean philosophy. on the number thirty-six. To the triad the Pythagoreans likewise attached much significance, since it has a beginning, a middle, and an end. To unity, or one, they gave the designation of the even-odd, asserting that it contained the property both of the even and odd, as is plain from the fact that if one is added to an even number it becomes odd, but if to an odd number it becomes even. They arranged the primary elements of nature in a table of ten contraries, of which the odd and even are one, and light and darkness another. They say that "the nature and energy of number may be traced not only in divine and demonish things, but in human works and words every where, and in all works of art and in music." They even linked their arithmetical views to morality, through the observation that numbers never lie; that they are hostile to falsehood; and that, therefore, truth belongs to their family: their fanciful speculations led them to infer that in the limitless or infinite, falsehood and envy must reign. From similar reasoning, they concluded that the number one contained not only the perfect, but also the imperfect; hence it follows that the most good, most beautiful, and most true are not at the beginning, but that they are in the process of time evolved. They held that whatever we know must have had a beginning, a middle, and an end, of which the beginning and end are the boundaries or limits; but the middle is unlimited, and, as a consequence, may be subdivided *ad infinitum*. They therefore

resolved corporeal existence into points, as is set forth in their maxim that "all is composed of points or spacial units, which, taken together, constitute a number." Such being their ideas of the limiting which constitutes the extreme, they understood by the unlimited the intermediate space or interval. By the aid of these intervals they obtained a conception of space; for, since the units, or monads, as they were also called, are merely geometrical points, no number of them could produce a line, but by the union of monads and intervals conjointly a line can arise, and also a surface, and also a solid. As to the interval thus existing between monads, some considered it as being mere aerial breath, but the orthodox regarded it as a vacuum; hence we perceive the meaning of their absurd affirmation that all things are produced by a vacuum. As it is not to be overlooked that the monads are merely mathematical points, and have no dimensions or size, substances actually contain no matter, and are nothing more than forms.

The Pythagoreans applied these principles to account for the origin of the world, saying that, since its very existence is an illusion, it could not have any origin in time, but only seemingly so to human thought. As to time itself, they regarded it as "existing only Pythagorean cosmogony. by the distinction of a series of different moments, which, however, are again restored to unity by the limiting moments." The diversity of relations we find in the world they supposed to be occasioned by the bond of harmony. "Since the principles of things are neither similar nor congenerous, it is impossible for them to be brought into order except by the intervention of harmony, whatever may have been the manner in which it took place. Like and homogeneous things, indeed, would not have required harmony; but, as to the dissimilar and unsymmetrical, such must necessarily be held together by harmony if they are to be contained in a world of order." In this manner they confused together the ideas of number and harmony, regarding the world not only as a combination of contraries, but as an orderly and harmonical combination thereof. To particular numbers they therefore imputed great significance, asserting that "there are seven chords or harmonies, seven pleiads, seven vowels, and that certain parts of the bodies of animals change in the course of seven years." They carried to an extreme the numerical doctrine, assigning certain numbers as the representatives of a bird, a horse, a man. This doctrine may be illustrated by facts familiar to chemists, who, in like manner, attach significant numbers to the names of things. Taking hydrogen as unity, 6 belongs to carbon, Modern Pythagorisms in chemistry. 8 to oxygen, 16 to sulphur. Carrying these principles out, there is no substance, elementary or compound, inorganic or organic, to which an expressive number does not belong. Nay, even archetypal forms, as of man or any other such composite structure, may thus possess a typical number, the sum of the numbers of its constituent parts.

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The approval so generally expressed for the doctrines of Pythagoras was doubtless very much due to the fact that they supplied an intellectual void. Those who had been in the foremost ranks of philosophy had come to the conclusion that, as regards external things, and even ourselves, we have no criterion of truth; but in the properties of numbers and their relations, such a criterion does exist.

It would scarcely repay the reader to pursue this system in its details; a very superficial representation of it is all that is necessary for our purpose. It recognizes two species of numbers, the odd and even; and since one, or unity, must be at once both odd and even, it must be the very essence of number, and the ground of all other numbers; hence the meaning of the Pythagorean expression, "All comes from one;" which also took form in the mystical allusion, "God embraces all and actuates all, and is but one." To the number ten extraordinary importance was imputed, since it contains in itself, or arises from the addition of, 1, 2, 3, 4—that is, of even and odd numbers together; hence it received the name of the grand tetractys, because it so contains the first four numbers. Some, however, assert that that designation was imposed

Pythagorean philosophy. on the number thirty-six. To the triad the Pythagoreans likewise attached much significance, since it has a beginning, a middle, and an end. To unity, or one, they gave the designation of the even-odd, asserting that it contained the property both of the even and odd, as is plain from the fact that if one is added to an even number it becomes odd, but if to an odd number it becomes even. They arranged the primary elements of nature in a table of ten contraries, of which the odd and even are one, and light and darkness another. They say that "the nature and energy of number may be traced not only in divine and demonish things, but in human works and words every where, and in all works of art and in music." They even linked their arithmetical views to morality, through the observation that numbers never lie; that they are hostile to falsehood; and that, therefore, truth belongs to their family: their fanciful speculations led them to infer that in the limitless or infinite, falsehood and envy must reign. From similar reasoning, they concluded that the number one contained not only the perfect, but also the imperfect; hence it follows that the most good, most beautiful, and most true are not at the beginning, but that they are in the process of time evolved. They held that whatever we know must have had a beginning, a middle, and an end, of which the beginning and end are the boundaries or limits; but the middle is unlimited, and, as a consequence, may be subdivided *ad infinitum*. They therefore

resolved corporeal existence into points, as is set forth in their maxim that "all is composed of points or spacial units, which, taken together, constitute a number." Such being their ideas of the limiting which constitutes the extreme, they understood by the unlimited the intermediate space or interval. By the aid of these intervals they obtained a conception of space; for, since the units, or monads, as they were also called, are merely geometrical points, no number of them could produce a line, but by the union of monads and intervals conjointly a line can arise, and also a surface, and also a solid. As to the interval thus existing between monads, some considered it as being mere aerial breath, but the orthodox regarded it as a vacuum; hence we perceive the meaning of their absurd affirmation that all things are produced by a vacuum. As it is not to be overlooked that the monads are merely mathematical points, and have no dimensions or size, substances actually contain no matter, and are nothing more than forms.

The Pythagoreans applied these principles to account for the origin of the world, saying that, since its very existence is an illusion, it could not have any origin in time, but only seemingly so to human thought. As to time itself, they regarded it as "existing only Pythagorean cosmogony. by the distinction of a series of different moments, which, however, are again restored to unity by the limiting moments." The diversity of relations we find in the world they supposed to be occasioned by the bond of harmony. "Since the principles of things are neither similar nor congenerous, it is impossible for them to be brought into order except by the intervention of harmony, whatever may have been the manner in which it took place. Like and homogeneous things, indeed, would not have required harmony; but, as to the dissimilar and unsymmetrical, such must necessarily be held together by harmony if they are to be contained in a world of order." In this manner they confused together the ideas of number and harmony, regarding the world not only as a combination of contraries, but as an orderly and harmonical combination thereof. To particular numbers they therefore imputed great significance, asserting that "there are seven chords or harmonies, seven pleiads, seven vowels, and that certain parts of the bodies of animals change in the course of seven years." They carried to an extreme the numerical doctrine, assigning certain numbers as the representatives of a bird, a horse, a man. This doctrine may be illustrated by facts familiar to chemists, who, in like manner, attach significant numbers to the names of things. Taking hydrogen as unity, 6 belongs to carbon, Modern Pythagorisms in chemistry. 8 to oxygen, 16 to sulphur. Carrying these principles out, there is no substance, elementary or compound, inorganic or organic, to which an expressive number does not belong. Nay, even archetypal forms, as of man or any other such composite structure, may thus possess a typical number, the sum of the numbers of its constituent parts.

It signifies nothing what interpretation we give to these numbers, whether we regard them as atomic weights, or, declining the idea of atoms, consider them as the representatives of force. As in the ancient philosophical doctrine, so in the modern science, the number is invariably connected with the name of a thing, of whatever description the thing may be.

The grand standard of harmonical relation among the Pythagoreans was the musical octave. Physical qualities, such as color and tone, were supposed to appertain to the surface of bodies. Of the elements they enumerated five—earth, air, fire, water, and ether, connecting therewith the fact that man has five organs of sense. Of the planets they numbered five, which, together with the sun, moon, and earth, are placed apart at distances determined by a musical law, and in their movements through space give rise to a sound, the harmony of the spheres, unnoticed by us because we habitually hear it. They place the sun in the centre of the system, round which, with the other planets, the earth revolves. At this point the geocentric doctrine is being abandoned and the heliocentric taking its place. As the circle is the most perfect of forms, the movements of the planets are circular. They maintained that the moon is inhabited, and like the earth, but the people there are taller than men, in the proportion as the moon's periodic rotation is greater than that of the earth. They explained the Milky Way as having been occasioned by the fall of a star, or that it was formerly the path of the sun. They asserted that the world is eternal, but the earth is transitory and liable to change, the universe being in the shape of a sphere. They held that the soul of man is merely an efflux of the universal soul, and that it comes into the body from without. From dreams and the events of sickness they inferred the existence of good and evil demons. They supposed that souls can exist without the body, leading a kind of dream-life, and identified the motes in the sun-beam with them. Their heroes and demons were souls not yet become embodied, or who had ceased to be so. The doctrine of transmigration which they had adopted was in unison with such views, and, if it does not imply the absolute immortality of the soul, at least asserts its existence after the death of the body, for the disembodied spirit becomes incarnate again as soon as it finds a tenement which fits it. To their life after death the Pythagoreans added a doctrine of retributive rewards and punishments, and, in this respect, what has been said of the animated world forming a penitential mechanism in the theology of India and Egypt, holds good for the Pythagoreans too.

Of their system of politics nothing can now with certainty be affirmed beyond the fact that its prime element was an aristocracy. Of their rule of private life, but little beyond its including a recommendation of moderation in all things, the cultivation of friendship, the observance

of faith, and the practice of self-denial, promoted by ascetical exercises. It was a maxim with them that a right education is not only of importance to the individual, but also to the interests of the state. Pythagoras himself, as is well known, paid much attention to the determination of extension and gravity, the ratios of musical tones, astronomy, and medicine. He inculcated on his disciples, in their orgies or secret worship, to practice gymnastics, dancing, music. In correspondence with his principle of imparting to men only such knowledge as they were fitted to receive, he communicated to those who were less perfectly prepared only exoteric doctrines, reserving the esoteric for the privileged few who had passed five years in silence, had endured humiliation, and been purged by self-denial and sacrifice.

We have reached now the consideration of the Eleatic philosophy. It differs from the preceding in its neglect of material things, and its devotion to the supra-sensible. It derives its name from Elea, a Greek colonial city of Italy, its chief authors being Xenophanes, Parmenides, and Zeno. The Eleatic philosophy.

Xenophanes was a native of Ionia, from which having been exiled, he appears to have settled at last in Elea, after leading for many years the life of a wandering rhapsodist. He gave his doctrines a poetical form for the purpose of more easily diffusing them. To the multitude he became conspicuous from his opposition to Homer, Hesiod, and other popular poets, whom he denounced for promoting the base polytheism of the times, and degrading the idea of the divine by the immoralities they attributed to the gods. He proclaimed God as an all-powerful Being, existing from eternity, and without any likeness to man. A strict monotheist, he denounced the plurality of gods as an inconceivable error, asserting that of the all-powerful and all-perfect there could not, in the nature of things, be more than one; for, if there were only so many as two, those attributes could not apply to one of them, much less, then, if there were many. This one principle or power was to him the same as the universe, the substance of which, having existed from all eternity, must necessarily be identical with God; for, since it is impossible that there should be two Omnipresents, so also it is impossible that there should be two Eternals. Well, therefore, may it be said that there is a tincture of Orientalism in his ideas, since it would scarcely be possible to offer a more succinct and luminous exposition of the pantheism of India. Xenophanes represents a great philosophical advance.

The reader who has been wearied with the frivolities of the Ionian philosophy, and lost in the mysticisms of Pythagoras, can not fail to recognize that here we have something of a very different kind. To an Oriental dignity of conception is added an extraordinary clearness and precision of reasoning. He approaches the Indian ideas.

To Xenophanes all revelation is a pure fiction; the discovery of the

invisible is to be made by the intellect of man alone. The vulgar belief which imputes to the Deity the sentiments, passions, and crimes of man, is blasphemous and accursed. He exposes the impiety of those who would figure the Great Supreme under the form of a man, telling them that if the ox or the lion could rise to the conception of the Deity, they might as well embody him under their own shape; that the negro represents him with a flat nose and black face; the Thracian with blue eyes and a ruddy complexion. "There is but one God; he has no resemblance to the bodily form of man, nor are his thoughts like ours." He taught that God is without parts, and throughout alike; for, if he had parts, some would be ruled by others, and others would rule, which is impossible, for the very notion of God implies his perfect and thorough sovereignty. Throughout he must be Reason, and Intelligence, and Omnipotence, "ruling the universe without trouble by Reason and Insight." He conceived that the Supreme understands by a sensual perception, and not only thinks, but sees and hears throughout. In a symbolical manner he represented God as a sphere, like the heavens, which encompass man and all earthly things.

In his natural philosophy it is said that he adopted the four elements, Earth, Air, Fire, Water; though by some it is asserted that, from observing fossil fish on the tops of mountains, he was led to the belief that the earth itself arose from water; and, generally, that the phenomena of nature originate in combinations of the primary elements. From such views he inferred that all things are necessarily transitory, and that men, and even the earth itself, must pass away. As to the latter, he regarded it as a flat surface, the inferior region of which extends indefinitely downward, and so gives a solid foundation. His physical views he, however, held with a doubt almost bordering on skepticism: "No mortal man ever did, or ever shall know God and the universe thoroughly; for, since error is so spread over all things, it is impossible for us to be certain even when we utter the true and the perfect." It seemed to him hopeless that man could ever ascertain the truth, since he has no other aid than truthless appearances.

I can not dismiss this imperfect account of Xenophanes, who was, undoubtedly, one of the greatest of the Greek philosophers, without an allusion to his denunciation of Homer, and other poets of his country, because they had aided in degrading the idea of the Divinity; and also to his faith in human nature, his rejection of the principle of concealing truth from the multitude, and his self-devotion in diffusing it among all at a risk of liberty and life. He wandered from country to country, withstanding polytheism to its face, and imparting wisdom in rhapsodies and hymns, the form, of all others, calculated most quickly in those times to spread knowledge abroad. To those who are disposed to depreciate his philosophical conclusions, it may be remarked that in some

of their most striking features they have been reproduced in modern times, and I would offer to them a quotation from the General Scholium at the end of the third book of the *Principia* of Newton: "The Supreme God exists necessarily, and by the same necessity he exists *always* and *every where*. Whence, also, he is all similar, all eye, all ear, all brain, all arm, all power to perceive, to understand, and to act, but in a manner not at all human, not at all corporeal; in a manner utterly unknown to us. As a blind man has no idea of colors, so have we no idea of the manner by which the all-wise God perceives and understands all things. He is utterly void of all body and bodily figure, and can therefore neither be seen, nor heard, nor touched, nor ought to be worshiped under the representation of any corporeal thing. We have ideas of his attributes, but what the real substance of any thing is we know not."

Some of his thoughts
reappear in Newton.

To the Eleatic system thus originating with Xenophanes is to be attributed the dialectic phase henceforward so prominently exhibited by Greek philosophy. It abandoned, for the most part, the pursuits which had occupied the Ionians—the investigation of visible nature, the phenomena of material things, and the laws presiding over them; conceiving such to be merely deceptive, and attaching itself to what seemed to be the only true knowledge—an investigation of Being and of God. By the Eleats, since all change appeared to be an impossibility, the phenomena of succession presented by the world were regarded as a pure illusion, and they asserted that Time, and Motion, and Space are phantasms of the imagination, or vain deceptions of the senses. They therefore separated reason from opinion, attributing to the former conceptions of absolute truth, and to the latter imperfections arising from the fictions of sense. It was on this principle that Parmenides divided his work on "Nature" into two books, the first on Reason, the second on Opinion. Starting from the nature of Being, the uncreated and unchangeable, he denied altogether the idea of succession in time, and also the relations of space, and pronounced change and motion, of whatever kind they are to be, mere illusions of opinion. His pantheism appears in the declaration that the All is thought and intelligence; and this, indeed, constitutes the essential feature of his doctrine; for, by thus placing thought and being in parallelism with each other, and interconnecting them by the conception that it is for the sake of being that thought exists, he showed that they must necessarily be conceived of as one.

Parmenides on reason and opinion.

Philosophy becoming Pantheism.

Such profound doctrines occupied the first book of the poem of Parmenides; in the second he treated of opinion, which, as we have said, is altogether dependent on the senses, and therefore unreliable, not, however, that it must necessarily be absolutely false. It is scarcely possible for us to reconstruct from the remains of his works the details of

cealment and mystification, as is strikingly shown in the history of the Pythagoreans.

Of Pythagoras, the founder of this sect, but little is known with certainty; even the date of his birth is contested. Probably he Pythagoras, biography of. was born at Samos about B.C. 540. If we were not expressly told so, we should recognize from his doctrines that he had been in Egypt and India. Some eminent scholars, who desire on all occasions to magnify the learning of ancient Europe, depreciate as far as they can the universal testimony of antiquity that such was the origin of the knowledge of Pythagoras, asserting that the constitution of the Egyptian priesthood rendered it impossible for a foreigner to become initiated. They forget that the ancient system of that country had been totally destroyed in the great revolution which took place more than a century before those times. If it were not explicitly stated by the ancients that Pythagoras lived for twenty-two years in Egypt, there is sufficient internal evidence in his story to prove that he had been there for a long time. Just as a connoisseur can detect the hand of a master by the style of a painting, so one who has devoted attention to the old systems of thought sees the Egyptian in the philosophy of Pythagoras at a glance.

He passed into Italy during the reign of Tarquin the Proud, and settled at Crotona, a Greek colonial city on the Bay of Tarentum. At first he established a school, but, favored by local dissensions, he gradually organized from the youth who availed themselves of his instructions a secret political society. Already it had passed into a maxim among the learned Greeks that it is not advantageous to communicate knowledge too freely to the people—a bitter experience in persecutions seemed to demonstrate that the maxim was founded in truth. The step from a secret philosophical society to a political conspiracy is but short. Pythagoras appears to have taken it. The disciples who were admitted to his scientific secrets after a period of probation and process of examination constituted a ready instrument of intrigue against the state, the issue of which, after a time, appeared in the supplanting of the ancient senate and the exaltation of Pythagoras and his club to the administration of government. The actions of men in all times are determined by similar principles; and as it would be now with such a conspiracy, so it was then; for, though the Pythagorean influence spread from Crotona to other Italian towns, an overwhelming reaction soon set in, the innovators were driven into exile, their institutions destroyed, and their founder fell a victim to his enemies.

The organization attempted by the Pythagoreans is an exception to the general policy of the Greeks. The philosophical schools had been merely points of reunion for those entertaining similar opinions; but in the state they can hardly be regarded as having had any political existence.

men of his method: "He asked if a grain of corn, or the ten thousandth part of a grain would, when it fell to the ground, make a noise. Being answered in the negative, he farther asked whether, then, would a measure of corn. This being necessarily affirmed, he then demanded whether the measure was not in some determinate ratio to the single grain; as this could not be denied, he was able to conclude, either, then, the bushel of corn makes no noise on falling, or else the very smallest portion of a grain does the same."

To the names already given as belonging to the Eleatic school may be added that of Melissus of Samos, who also founded his argument on the nature of Being, deducing its unity, un- and by Melissus of Samos. changeability, and indivisibility. He denied, like the rest of his school, all change and motion, regarding them as mere illusions of the senses. From the indivisibility of being he inferred its incorporeality, and therefore denied all bodily existence.

The list of Eleatic philosophers is doubtfully closed by the name of Empedocles of Agrigentum, who in legend almost rivals Py- Biography of Empedocles. thagoras. In the East he learned medicine and magic, the art of working miracles, of producing rain and wind. He decked himself in priestly garments, a golden girdle, and a crown, proclaiming himself to be a god. It is said by some that he never died, but ascended to the skies in the midst of a supernatural glory. By some it is related that he leaped into the crater of Etna, that, the manner of his death being unknown, he might still continue to pass for a god—an expectation disappointed by an eruption which cast out one of his brazen sandals.

Agreeably to the school to which he belonged, he looked to Reason and distrusted the Senses. From his fragments it has been inferred that he was skeptical of the guidance of the former as well as of the latter, founding his distrust on the imperfection the soul has contracted, and for which it has been condemned to existence in this world, and even to transmigration from body to body. Adopting the Eleatic doctrine that like can be only known by like, fire by fire, love by love, the recognition of the divine by man is sufficient proof that the Divine exists. His primary elements were four—Earth, Air, Fire, and Water; to these he added two principles, Love and Hate. The He mingles mysticism with philosophy. four elements he regarded as four gods, or divine eternal forces, since out of them all things are made. Love he regards as the creative power, the destroyer or modifier being Hate. It is obvious, therefore, that in him the strictly philosophical system of Xenophanes had degenerated into a mixed and mystical view, in which the physical, the metaphysical, and the moral were confounded together; and that, as the necessary consequence of such a state, the principles of knowledge were becoming unsettled, a suspicion arising that all philosophical systems were unreliable, and a general skepticism was already setting in.

To this result, in no small degree, the labors of Democritus of Abdera also tended. He had had the advantages derived from wealth in the procurement of knowledge, for it is said that his father was rich enough to be able to entertain the Persian King Xerxes, who was so gratified thereby that he left several Magi and Chaldeans to complete the education of the youth. On their father's death, Democritus, dividing with his brothers the estate, took as his portion the share consisting of money, leaving to them the lands, that he might be better able to devote himself to traveling. He passed into Egypt, Ethiopia, Persia, and India, gathering knowledge from all those sources.

According to Democritus, "Nothing is true, or, if so, is not certain to us." Nevertheless, as in his system sensation constitutes thought, and, at the same time, is but a change in the sentient being, "sensations are of necessity true;" from which somewhat obscure passage we may infer that, in the view of Democritus, though sensation is true subjectively, it is not true objectively. The sweet, the bitter, the hot, the cold, are simply creations of the mind; but in the outer object to which we append them, atoms and space alone exist, and our opinion of the properties of such objects is founded upon images emitted by them falling upon the senses. Confounding in this manner sensation with thought, and making them identical, he, moreover, included Reflection as necessary for true knowledge, Sensation by itself being unreliable. Thus, though Sensation may indicate to us that sweet, bitter, hot, cold, occur in bodies, Reflection teaches us that this is altogether an illusion, and that, in reality, atoms and space alone exist.

Devoting his attention, then, to the problem of perception—how the mind becomes aware of the existence of external things—he resorted to the hypothesis that they constantly throw off images of themselves, which are assimilated by the air through which they have to pass, and enter the soul by pores in its sensitive organs. Hence such images, being merely of the superficial form, are necessarily imperfect and untrue, and so, therefore, must be the knowledge yielded by them. Democritus rejected the one element of the Eleatics, affirming that there must be many; but he did not receive the four of Empedocles, nor his principles of Love and Hate, nor the homœomeriæ of Anaxagoras. He

He introduces the
atomic theory.

also denied that the primary elements had any sensible qualities whatever. He conceived of all things as being composed of invisible, intangible, and indivisible particles or atoms, which, by reason of variation in their configuration, combination, or position, give rise to the varieties of forms: to the atom he imputed self-existence and eternal duration. His doctrine, therefore, explains how it is that the many can arise from the one, and in this particular he reconciled the apparent contradiction of the Ionians and Eleatics. The theory of chemistry essentially includes his views. The

general formative principle of Nature he regarded as being Destiny or Fate; but there are indications that by this Destiny, Fate, and resistless law. he meant nothing more than irreversible law.

A system thus based upon severe mathematical considerations, and taking as its starting-point a vacuum and atoms—the former actionless and passionless; which considers the production of new things as only new aggregations, and the decay of the old as separations; which recognizes in compound bodies specific arrangements of atoms to one another; which can rise to the conception that even a single atom may constitute a world—such a system may commend itself to our attention for its results, but surely not to our approval, when we find it carrying us to the conclusions that even mathematical cognition is a mere semblance; that the soul is only a finely-constituted form fitted into the grosser bodily frame; that even to reason itself there is an absolute im- Is led to atheism. possibility of all certainty; that skepticism is to be indulged in to that degree that we may doubt whether, when a cone has been cut asunder, its two surfaces are alike; that the final result of human inquiry is the absolute demonstration that man is incapable of knowledge; that, even if the truth is in his possession, he can never be certain of it; that the world is an illusive phantasm, and that there is no God.

I need scarcely refer to the legendary stories related of Democritus, as that he put out his eyes with a burning-glass that he might Legends of Democritus. no longer be deluded with their false indications, and more tranquilly exercise his reason—a fiction bearing upon its face the contemptuous accusation of his antagonists, but, by the stolidity of subsequent ages, received as an actual fact instead of a sarcasm. As to his habit of so constantly deriding the knowledge and follies of men that he universally acquired the epithet of the laughing philosopher, we may receive the opinion of the great physician Hippocrates, who, being requested by the people of Abdera to cure him of his madness, after long discoursing with him, expressed himself penetrated with admiration, and even with the most profound veneration for him, and rebuked those who had sent him with the remark that they themselves were the more distempered of the two.

Thus far European Greece had done but little in the cause of philosophy. The chief schools were in Asia Minor, or among the Greek colonies of Italy. But the time had now arrived when the Rise of philosophy in European Greece. mother country was to enter upon a distinguished career, though, it must be confessed, from a most unfavorable beginning. This was by no means the only occasion on which the intellectual activity of the Greek colonies made itself felt in the destinies of Europe. The mercantile character in a community has ever been found conducive to mental activity and physical adventure; it holds in light esteem prescriptive opinion, and puts things at the actual value they at the time

possess. If the Greek colonies thus discharged the important function of introducing and disseminating speculative philosophy, we shall find them again, five hundred years later, occupied with a similar task on the advent of that period in which philosophical speculation was about to be supplanted by religious faith. For there can be no doubt that, humanly speaking, the cause of the rapid propagation of Christianity, in its first ages, lay in the extraordinary facilities existing among the commercial communities scattered all around the shores of the Mediterranean Sea, from the ports of the Levant to those of France and Spain. An incessant intercourse was kept up among them during the five centuries before Christ; it became, under Roman influence, more and more active, and of increasing political importance. Such a state of things is in the highest degree conducive to the propagation of thought, and, indeed, to its origination, through the constant excitement it furnishes to intellectual activity. Commercial communities, in this respect, present a striking contrast to agricultural. By their aid speculative philosophy was rapidly disseminated every where, as was subsequently Christianity. But the agriculturists steadfastly adhered with marvelous stolidity to their ancestral traditions and polytheistic absurdities, until the very designation—paganism—under which their system passes was given as a nickname derived from themselves.

The intellectual condition of the Greek colonies of Italy and Sicily has not attracted the attention of critics in the manner it deserves. For, though its political result may appear to those whose attention is fixed by mere material aggrandizement to have been totally eclipsed by the subsequent power of the Roman republic, to one who looks at things in a more general way it may be a probable inquiry whether the philosophy cultivated in those towns has not, in the course of ages, produced as solid and lasting results as the military achievements of the Eternal City. The relations of the Italian peninsula to the career of European civilization are to be classified under three epochs, the first corresponding to the philosophy generated in the southern Greek towns: this would have attained the elevation long before reached in the advanced systems of India had it not been prevented by the rapid development of Roman power; the second presents the military influence of republican and imperial Rome; to the third belongs the agency of ecclesiastical Rome; for the production of the last we shall find hereafter that the two preceding conspire. The Italian effect upon the whole has therefore been philosophical, material, and mixed. We are greatly in want of a history of the first, for which doubtless many facts still remain to a painstaking and enlightened inquirer.

It was on account of her territory and her numerous population that Greece was able to exert so great an influence. To these motives must be added

internal dissensions, and particularly the consequences of unequal marriages. So numerous did these colonies and their offshoots become, that a great Greek influence pervaded all the Mediterranean Origin of the Greek colonial system. shores and many of the most important islands, attention more particularly being paid to the latter, from their supposed strategical value; thus, in the opinion of Alexander the Great, the command of the Mediterranean lay in the possession of Cyprus. The Greek colonists were filibusters; they seized by force the women wherever they settled, but their children were taught to speak the paternal language, as has been the case in more recent times with the descendants of the Spaniards in America. The wealth of some of these Greek colonial towns is said to have been incredible. Croton was more than twelve miles in circumference; and Sybaris, another of the Italiot cities, was so luxurious and dissipated as even to give rise to a proverb. The prosperity of these places was due to two causes: they were not only the centres of great agricultural districts, but carried on an active commerce in all directions, the dense population of the mother country offering them a steady and profitable market; they also maintained an active traffic with all the Mediterranean cities; thus, if they furnished Athens with corn, they also furnished Carthage with oil. In the Greek cities connected with this colonial system, especially in Athens, the business of ship-building and navigation were so extensively prosecuted as to give a special character to public life. In other parts of Greece, as in Sparta, it was altogether different. In that state the laws of Lycurgus had abolished private property; all things were held in common; it was savage life reduced to a system, and therefore there was no object in commerce. But in Athens, so far from being dishonorable was commerce regarded, that some of the most illustrious men, whose names have descended to us as philosophers, were occupied with mercantile pursuits. Aristotle kept a druggist's shop in Athens, and Plato sold oil in Egypt.

It was the intention of Athens, had she succeeded in the conquest of Sicily, to make an attempt upon Carthage, foreseeing therein the dominion of the Mediterranean, as was actually realized subsequently by Rome. The destruction of that city constituted the point of ascendancy in the history of the Great Republic. Carthage stood upon a peninsula forty-five miles round, with a neck only three miles across. Her territory has been estimated as having a sea-line of not less than 1400 miles, and containing 300 towns; she had also possessions in Spain, in Sicily, and other Mediterranean islands, acquired, not by conquest, but by colonization. In the silver mines of Spain she employed not less than forty thousand men. In these respects she was guided by the maxims of her Phœnician ancestry, for the Tyrians had colonized for depôts, and had forty stations of that kind in the Mediterranean. Indeed, Carthage

herself originated in that way, owing her development to the position she held at the juncture of the east and west basins. The Carthaginian supremacy in the Mediterranean. Carthaginian merchants did not carry for hire, but dealt in their commodities. This implied an extensive system of depôts and bonding. They had anticipated many of the devices of modern commerce. They effected insurances, made loans on bottomry, and it has been supposed that their leathern money may have been of the nature of our bank notes.

In the preceding chapter we have spoken of the attempts of the Asiatics on Egypt and the south shore of the Mediterranean; we have now to turn to their operations on the north shore, the consequences of which are of the utmost interest in the history of philosophy. It appears that the cities of Asia Minor, after their contest with the Lydian kings, had fallen an easy prey to the Persian power. It remained, therefore, only for that power to pass to the European continent. A pretext is easily found where the policy is so clear. So far as the internal condition of Greece was concerned, nothing could be more tempting to an invader. There seemed to be no bond of union between the different towns, and, indeed, the more prominent ones might be regarded as in a state of chronic revolution. In Athens, since B.C. 622, the laws of Draco had been supplanted by those of Solon; and again and again the government had been seized by violence or gained through intrigue by one adventurer after another. Under these cir-

Contest between them and the Greeks.

cumstances the Persian king passed an army into Europe. The military events of both this and the succeeding invasion under Xerxes have been more than sufficiently illustrated by the brilliant imagination of the lively Greeks. It was needless, however, to devise such fictions as the million of men who crossed into Europe, or the two hundred thousand who lay dead upon the field after the battle of Plataea. If there were not such stubborn facts as the capture

The fifty years' war, and eventual supremacy of Athens.

and burning of Athens, the circumstance that these wars lasted for fifty years would be sufficient to inform us that all the advantages were not on one side. Wars do not last so long without bringing upon both parties disasters as well as conferring glories; and had these been so exterminating and overwhelming as classical authors have supposed, our surprise may well be excited that the Persian annals have preserved so little memory thereof. Greece did not perceive that, if posterity must take her accounts as true, they must give the palm of glory to Persia, who could, with unfaltering perseverance, persist in attacks illustrated by such unparalleled catastrophes. She did not perceive that the annals of a nation may be more splendid from their exhibiting a courage which could bear up for half a century against continual disasters, and extract victory at last from defeat.

In pursuance of their policy, the Persians extended their dominion to Cyrene and Barca on the south, as well as to Thrace and Macedonia on the north. The Persian wars gave rise to that wonderful development in Greek art which has so worthily excited the admiration of subsequent ages. The assertion is quite true that after those wars the Greeks could form in sculpture living men. On the part of the Persians, these military undertakings were not of the base kind so common in antiquity; they were the carrying out of a policy conceived with great ability, their object being to obtain countries for tribute and not for devastation. The great critic Niebuhr, by whose opinions I am guided in the views I express of these events, admits that the Greek accounts, when examined, present little that was possible. The Persian empire does not seem to have suffered at all; and Plato, whose opinion must be considered as of very great authority, says that, on the whole, the Persian wars reflect extremely little honor on the Greeks. It was asserted that only thirty-one towns, and most of them small ones, were faithful to Greece. Treason to her seems for years in succession to have infected all her ablest men. It was not Pausanias alone who wanted to be king under the supremacy of Persia. Such a satrap would have borne about the same relation to the great king as the modern pacha does to the grand seignior. However, we must do justice to those able men. A king was what Greece in reality required; had she secured one at this time strong enough to have held her conflicting interests in check, she would have become the mistress of the world. Her leading men saw this.

The elevating effect of the Persian wars was chiefly felt in Athens. It was there that the grand development of pure art, literature, and science took place. As to Sparta, she remained barbarous as she had ever been; the Spartans continuing robbers and impostors, in their national life exhibiting not a single feature that can be commended. Mechanical art reached its perfection at Corinth; real art at Athens, finding a multitude not only of true, but also of new expressions. Before Pericles the only style of architecture was the Doric; his became at once the age of perfect beauty. It also became the age of freedom in thinking and departure from the national faith. In this respect the history of Pericles and of Aspasia is very significant. His, also, was the great age of oratory, but of oratory leading to delusion, the democratical forms of Athens being altogether deceptive, power ever remaining in the hands of a few leading men, who did every thing. The true popular sentiment, as was almost always the case under those ancient republican institutions, could find for itself no means of expression. The great men were only too prone to regard their fellow-citizens as a rabble, mere things to be played off against one another, and to consider that the objects of life are dominion and lust;

The consequence
is her vast intel-
lectual progress.

Her progress
in art.

that love, self-sacrifice, and devotion are fictions; that oaths are only good for deception.

Though the standard of statesmanship, at the period of the Persian wars, was very low, there can be no doubt that among the Greek leaders were those who clearly understood the causes of the Asiatic attack, and hence, with an instinct of self-preservation, defensive alliances were continually maintained with Egypt. When their valor and endurance

had given to the Greeks a glorious issue to the war, the articles contained in the final treaty manifest clearly the motives and understandings of both parties. No Persian vessel was to appear between the Cyanean Rocks and Chelidonian Islands; no Persian army to approach within three days' journey of the Mediterranean Sea, B.C. 449.

To Athens herself the war had given political supremacy. We need only look at her condition fifty years after the battle of Plataea. She was the mistress along Asia Minor of more than a thousand miles of coast; she held as dependencies more than forty islands; she controlled the straits between Europe and Asia; her fleets ranged the Mediterranean and the Black Seas uncontrolled; she had monopolized the trade of all the adjoining countries; her magazines were full of the most valuable objects of commerce. From the ashes of the Persian fire she had risen up so supremely beautiful that her temples, her statues, her works

of art, in their exquisite perfection, have since had no parallel in the world. Her intellectual supremacy equaled her political. To her, as to a focal point, the rays of light from every direction converged. The philosophers of Italy and Asia Minor directed their steps to her as to the acknowledged centre of mental activity. As to Egypt, an utter ruin had befallen her since she was desolated by the Persian arms. Yet we must not therefore infer that though, as conquerors, the Persians had trodden out the most aged civilization on the globe, as sovereigns they were haters of knowledge, or merciless as kings. We must not forget that the Greeks of Asia Minor were satisfied with their rule, or, at all events, preferred rather to remain their subjects than to contract any permanent political connections with the conquering Greeks of Europe.

In this condition of political glory, Athens became not only the birth-place of new and beautiful productions of art, founded on a more just appreciation of the true than had yet been attained to in any previous age of the world, and which, it may be added, have never been surpassed, if, indeed, they have been equaled since, but she also became the receptacle for every philosophical opinion, new and old. Ionian, Italian, Egyptian, Persian, all were brought to her, and contrasted and compared together. Indeed, the philosophical celebrity of Greece is altogether due to Athens. The rest of the country participated but little

The treaty with Persia.

She becomes the centre of policy and philosophy.

in the cultivation of learning. It is a popular error that Greece, in the aggregate, was a learned country.

We have already seen how the researches of individual inquirers, passing from point to point, had conducted them, in many instances, to a suspicion of the futility of human knowledge; and looking at the results reached by the successive philosophical schools, we can not fail to remark that there was a general tendency to skepticism. State of philosophy at this moment. We have seen how, from the material and tangible beginnings of the Ionians, the Eleatics land us not only in a blank atheism, but in a disbelief of the existence of the world. And though it may be said that these were only the isolated results of special schools, it is not to be forgotten that they were of schools the most advanced. The time had now arrived when the name of a master was no more to usurp the place of reason, as had been hitherto the case; when these last results of the different methods of philosophizing were to be brought together, a criticism of a higher order established, and conclusions of a higher order deduced.

Thus it will ever be with all human investigation. The primitive philosophical elements from which we start are examined, Commencement of the higher analysis. first by one and then by another, each drawing his own special conclusions and deductions, and each firmly believing in the truth of his inferences. Each analyst has seen the whole subject from a particular point of view, without concerning himself with the discordances, contradictions, and incompatibilities obvious enough when his conclusions come to be compared with those of other analysts as skillful as himself. In process of time, it needs must be that a new school of examiners will arise, who, taking the results at which their predecessors have arrived from an examination of the primary elements, will institute a secondary comparison; a comparison of results with results; a comparison of a higher order, and more likely to lead to absolute truth.

Perhaps I can not better convey what I here mean by this secondary and higher analysis of philosophical questions than by introducing, as an illustration, what took place subsequently in Rome Illustration from subsequent Roman history. through her policy of universal religious toleration. The priests and followers of every god and of every faith were permitted to pursue without molestation their special forms of worship. Of these, it may be supposed that nearly all were perfectly sincere in their adhesion to their special divinity, and, if the occasion had arisen, could have furnished unanswerable arguments in behalf of his supremacy and of the truth of his doctrines. Yet it is very clear that, by thus bringing these several primary systems into contact, a comparison of a secondary and of a higher order, and therefore far more likely to approach to absolute truth, must needs be established between them. It is very well known that the popular result of this secondary examination was the philosophical rejection of polytheism.

So, in Athens, the result of the secondary examination of philosophical systems and deductions was skepticism as regards them all, and the rise of a new order of men—the Sophists—who not only rejected the validity of all former philosophical methods, but carried their infidelity to a degree plainly not warranted by the facts of the case, in this, that they not only denied that human reason had thus far succeeded in ascertaining any thing, but even affirmed that it is incapable, from its very nature, as dependent on human organization, or the condition under which it acts, of determining the truth at all; nay, that even if the truth is actually in its possession, since it has no criterion by which to recognize it, it can not so much as be certain that it is in such possession of it. From these principles it follows that, since we have no standard of the true, neither can we have any standard of the good, and that our ideas of what is good and what is evil are altogether produced by education or by convention. Or, to use the phrase adopted by the Sophists, "it is might that makes right." Right and wrong are hence seen to be mere fictions created by society, having no eternal or absolute existence in nature. The will of a monarch, or of a majority in a community, declares what the law shall be; the law defines what is right and what is wrong; and these, therefore, instead of having an actual existence, are mere illusions, owing their birth to the exercise of force. It is might that has determined and defined what is right. And hence it follows that it is needless for a man to trouble himself with the

They reject philosophy, and even morality.

monitions of conscience, or to be troubled thereby, for conscience, instead of being any thing real, is an imaginary fiction, or, at the best, owes its origin to education, and is the creation of our social state. Hence the wise will give himself no concern as to a meritorious act or a crime, seeing that the one is intrinsically neither better nor worse than the other; but he will give himself sedulous concern as respects his outer or external relations—his position in society; conforming his acts to that standard which they in their wisdom or folly, but in the exercise of their might, have declared shall be regarded as right. Or, if his occasions are such as to make it for his interest to depart from the social rule, let him do it in secrecy; or, what is far better, let him cultivate rhetoric, that noble art by which the wrong may be made to appear the right; by which he who has committed a crime may so mystify society as to delude it into the belief that he is worthy of praise; and by which he may prove that his enemy, who has really performed some meritorious deed, has been guilty of a crime. Animated by such considerations, the Sophists passed from place to place, offering to sell, for a sum of money, a knowledge of the rhetorical art, and disposed of their services in the instruction of the youth of wealthy and noble families.

What shall we say of such a state of things? Simply this: that it indicates a general and social demoralization.

tion—mental demoralization, for the principles of knowledge were sapped, and man persuaded that his reason was no guide; social demoralization, for he was taught that right and wrong, virtue and vice, conscience, and law, and God, are imaginary fictions; that there is no harm in the commission of sin, though there may be harm, as assuredly there is folly, in being detected therein; that it is excellent for a man to sell his country to the Persian king, provided that the sum of money he receives is large enough, and that the transaction is so darkly conducted that the public, and particularly his enemies, can never find it out. Let him never forget that patriotism is the first delusion of a simpleton, and the last refuge of a knave.

Such were the results of the first attempt to correct the partial philosophies, by submitting them to the measure of a more universal one; such the manner in which, instead of only losing their exclusiveness and imperfections by their contact with one another, they were wrested from their proper object, and made subservient to the purpose of deception. Nor was it alone science that was affected; already might be discerned the foreshadowings of that conviction which many centuries later occasioned the final destruction of polytheism in Rome. Already, in Athens, the voice of philosophers was heard, that among so many gods and so many different worships it was impossible for a man to ascertain what was true. Already, many even of the edu-
They reject the national religion.
cated were overwhelmed with the ominous suggestion that, if ever it had been the will of heaven to reveal any form of faith to the world, such a revelation, considering its origin, must necessarily have come with such power as to override all opposition; that if there existed only so many as two forms of faith synchronous and successful in the world, that fact would of itself demonstrate that neither of them are true, and that there never had been any revelation from an all-wise and omnipotent God. Nor was it merely among the speculative men that these infidelities were cherished; the leading politicians and statesmen had become deeply infected with them. It was not Anaxagoras alone who was convicted of atheism; the same charge was made against Pericles, the head of the republic—he who had done so much for the glory of Athens—the man who, in practical life, was, beyond all question, the first of his age. With difficulty he succeeded, by the use of what influence remained to him, in saving the life of the guilty philosopher his friend, but in the public estimation he was universally viewed as a participator in his crime. If the foundations of philosophy and those of religion were thus sapped, the foundations of law experienced no better fate. The Sophists, who were wandering all over the world, saw that each nation had its own ideas of merit and demerit, and therefore its own system of law; that even in different towns there were contrary conceptions of right and wrong, and therefore op-
Spread of their opinions among the highest classes.

posing codes. It is evident that in such examinations they applied the same principles which had guided them in their analysis of philosophy and religion, and that the result could be no otherwise than it was, to bring them to the conclusion that there is nothing absolute in justice or in law. To what an appalling condition has society arrived, when it reaches the positive conclusion that there is no truth, no religion, no justice, no virtue in the world; that the only object of human exertion is unrestrained physical enjoyment; the only standard of a man's position, wealth; that, since there is no possibility of truth, whose eternal principles might serve for an uncontrovertible and common guide, we should resort to deception and the arts of persuasion, that we may dupe others to our purposes; that there is no sin in undermining the social contract; no crime in blasphemy, or rather there is no blasphemy at all, since there are no gods; that "man is the measure of all things," as Protagoras teaches, and that "he is the criterion of existence;" that "thought is only the relation of the thinking subject to the object thought of, and that the thinking subject, the soul, is nothing more than the sum of the different moments of thinking." It is no wonder that that Sophist who was the author of such doctrines should be condemned to death to satisfy the clamors of a populace who had not advanced sufficiently into the depths of this secondary, this higher philosophy, and that it was only by flight that he could save himself from the punishment awaiting the opening sentiment of his book: "Of the gods I can not tell whether they are or not, for much hinders us from knowing this—both the obscurity of the subject and the shortness of life." It is no wonder that the social demoralization spread apace, when men like Gorgias, the disciple of Empedocles, were to be found, who laughed at virtue, made an open derision of morality, and proved, by metaphysical demonstration, that nothing at all exists.

From these statements respecting the crisis to which ancient philosophy had arrived, we might be disposed to believe that the result was unmitigated evil, for it scarcely deserves mention that the quibbles and disputes of the Sophists occasioned an extraordinary improvement of the Greek language, introducing a precision into its terms, and a wonderful dialectical skill in its use. For us there may be extracted from these melancholy conclusions at least one instructive lesson—that it is not during the process of decomposition of philosophies, and especially of religions, that social changes occur, for such breakings-up commonly go on in an isolated, and therefore innocuous way; but if by chance the fragments and decomposed portions are brought together, and attempts are made by fusion to incorporate them anew, or to extract from them, by a secondary analysis, what truth they contain, a crisis is at once brought on, and—such is the course of events—in the catastrophe that ensues they are commonly all absolutely de-

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blank athe-
ism.

Political dangers
of the higher
analysis.

stroyed. It was doubtless their foresight of such consequences that inspired the Italian statesmen of the Middle Ages with a resolute purpose of crushing in the bud every encroachment on ecclesiastical authority, and every attempt at individual interpretation of religious doctrines. For it is not to be supposed that men of clear intellect should be insensible to the obvious unreasonableness of many of the dogmas that had been consecrated by authority. But if once permission was accorded to human criticism and human interpretation, what other issue could there be than that doctrine upon doctrine, and sect upon sect should arise; that theological principles should undergo a total decomposition, until scarcely two men could be found whose views coincided; nay, even more than that, that the same man should change his opinion with the changing incidents of the different periods of his life. No matter what might be the plausible guise of the beginning, and the ostensibly cogent arguments for its necessity, once let the decomposition commence, and no human power could arrest it until it had become thorough and complete. Considering the prestige, the authority, and the mass of fact to be dealt with, it might take many centuries for this process to be finished, but that that result would at length be accomplished no enlightened man could doubt. The experience of the ancient European world had shown that in the act of such decompositions there is but little danger, since, for the time being, each sect, and, indeed, each individual, has a guiding rule of life. But as soon as the period of secondary analysis is reached a crisis must inevitably ensue, in all probability involving not only religion, but also the social contract. And though, by the exercise of force on the part of the interests that are disturbed, aided by that popular sentiment which is abhorrent of anarchy, the crisis might, for a time, be put off, it could not be otherwise than that Europe should be left in that deplorable state which must be the result when the intellect of a people has outgrown its formulas of faith. A fearful condition to contemplate, for such a dislocation must also affect political relations, and necessarily implies revolt against existing law. Nations plunged in the abyss of irreligion must necessarily be nations in anarchy. For a time their tendency to explosion may be kept down by the firm application of the hand of power; but this is simply an antagonism, it is no cure. The social putrefaction proceeds, working its way downward into classes that are lower and lower, until at length it involves the institutions that are relied on for its arrest. Armies, the machinery of compression, once infected, the end is at hand, but no human foresight can predict what the event shall be, especially if the contemporaneous ruling powers have either ignorantly or willfully neglected to prepare society for the inevitable trial it is about to undergo. It is the most solemn of all the duties of govern-

Illustrations from
the Middle Ages.

Danger of intellect
outgrowing formula
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Absolute necessity
of preparing communities
for these changes.

philosophers hypocrisy. Pantheistic notions of the nature of the world became more distinct, and, as their necessary consequence, ^{Approach to Oriental Ideas.} the doctrines of Emanation, Transmigration, and Absorption were entertained. From this it is but a step to the suspicion that matter, and motion, and time are phantasms of the imagination—opinions embodied in the atomic theory, which asserts that atoms and space alone exist; and which became more refined when it recognized that atoms are only mathematical points; and still more so when it considered them as mere centres of force. The brink of Buddhism was here approached.

As must necessarily ever be the case where men are coexisting in different psychical stages of advance, some having made a less, some a greater intellectual progress, all these, which we have described successively, were at last contemporaneously entertained. At this point commenced the action of the Sophists, who, by setting the doctrines of one school in opposition to those of another, and representing them all as of equal value, occasioned the destruction of them all, and the philosophy founded on physical speculation came to an end.

Of this phase of Greek intellectual life, if we may compare the beginning with the close, we can not fail to observe how great is ^{Uniformity in the manner of intellectual progress.} the improvement. The thoughts dealt with at the later period are intrinsically of a higher order than those at the outset. From the puerilities and errors with which we have thus been occupied, we learn that there is a definite mode of progress for the mind of man; from the history of later times we shall find that it is ever in the same direction.

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ments, when once they have become aware of such a momentous condition, to prepare the nations for its fearful consequences. For this it may, perhaps, be lawful for them to dissemble in a temporary manner, as it is sometimes proper for a physician to dissemble with his patient; it may be lawful for them even to resort to the use of force, but never should such measures of doubtful correctness be adopted without others directed to a preparation of the mass of society for the trials through which it is about to pass. Such, doubtless, were the profound views of the great Italian statesmen of the Middle Ages; such, doubtless, were the arguments by which they justified to themselves resistance against the beginning of the evil—a course for which Europe has too often and unfairly condemned them.

It remains for us now to review the details presented in the foregoing Summary of the preceding theories. pages for the purpose of determining the successive phases of development through which the Greek mind passed. It is not with the truth or fallacy of these details that we have to do, but with their order of occurrence. They are points enabling us to describe graphically the curve of Grecian intellectual advance.

The starting-point of Greek philosophy is physical and geocentral. The earth is the grand object of the universe, and, as the necessary result, erroneous ideas are entertained as to the relations and dimensions of the sea and air. This philosophy was hardly a century old before it commenced to cosmogonize, using the principles it considered itself sure of. Long before it was able to get rid of local ideas, such as upward and downward in space, it undertook to explain the origin of the world.

But, as advances were made, it was recognized that creation, in its various parts, displays intention and design, the adaptation of means to secure proposed ends. This suggested a reasoning and voluntary agency, like that of man, in the government of the world; and from a continual reference to human habits and acts, Greek philosophy passed through its stage of anthropoid conceptions.

A little farther progress awakened suspicions that the mind of man can obtain no certain knowledge; and the opinion at last prevailed that we have no reliable criterion of truth. In the skepticism thus setting in, the approach to Oriental ideas is each successive instant more and more distinct.

This period of doubt was the immediate forerunner of more correct cosmical opinions. The heliocentric mechanism of the planetary system was introduced, the earth deposed to a subordinate position. The doctrines, both physical and intellectual, founded on geocentric ideas, were necessarily endangered, and, since these had connected themselves with the prevailing religious views, and were represented by important material interests, the public commenced to practice persecution and the

philosophers hypocrisy. Pantheistic notions of the nature of the world became more distinct, and, as their necessary consequence, ^{Approach to Oriental ideas.} the doctrines of Emanation, Transmigration, and Absorption were entertained. From this it is but a step to the suspicion that matter, and motion, and time are phantasms of the imagination—opinions embodied in the atomic theory, which asserts that atoms and space alone exist; and which became more refined when it recognized that atoms are only mathematical points; and still more so when it considered them as mere centres of force. The brink of Buddhism was here approached.

As must necessarily ever be the case where men are coexisting in different psychical stages of advance, some having made a less, some a greater intellectual progress, all these, which we have described successively, were at last contemporaneously entertained. At this point commenced the action of the Sophists, who, by setting the doctrines of one school in opposition to those of another, and representing them all as of equal value, occasioned the destruction of them all, and the philosophy founded on physical speculation came to an end.

Of this phase of Greek intellectual life, if we may compare the beginning with the close, we can not fail to observe how great is ^{Uniformity in the manner of intellectual progress.} the improvement. The thoughts dealt with at the later period are intrinsically of a higher order than those at the outset. From the puerilities and errors with which we have thus been occupied, we learn that there is a definite mode of progress for the mind of man; from the history of later times we shall find that it is ever in the same direction.

CHAPTER V.

THE GREEK AGE OF FAITH.

RISE AND DECLINE OF ETHICAL PHILOSOPHY.

SOCRATES rejects *Physical and Mathematical Speculations*, and asserts the *Importance of Virtue and Morality*, thereby inaugurating an *Age of Faith*.—His *Life and Death*.—The *Schools* originating from his Movement teach the *Pursuit of Pleasure and Gratification of Self*.

PLATO founds the *Academy*.—His three primal Principles.—The *Existence of a personal God*.—*Nature of the World and the Soul*.—The *ideal Theory, Generals or Types*.—*Reminiscence*.—*Transmigration*.—*Plato's political Institutions*.—His *Republic*.—His *Proofs of the Immortality of the Soul*.—*Criticism on his Doctrines*.

RISE OF THE SKEPTICS, who conduct the higher *Analysis of Ethical Philosophy*.—Pyrrho demonstrates the *Uncertainty of Knowledge*.—*Inevitable Passage into tranquil Indifference, Quietude, and Irreligion*, as recommended by *Epicurus*.—*Decomposition of the Socratic and Platonic Systems in the later Academies*.—Their *Errors and Duplicities*.—*End of the Greek Age of Faith*.

THE Sophists had brought on an intellectual anarchy. It is not in the nature of humanity to be contented with such a state. Thwarted in its expectations from physics, the Greek mind turned its attention to morals. In the progress of life, it is but a step from the age of Inquiry to the age of Faith.

Socrates, who led the way in this movement, was born B.C. 469. He has exercised an influence in some respects felt to our times. Having experienced the unprofitable results arising from physical speculation, he set in contrast therewith the solid advantages to be enjoyed from the cultivation of virtue and morality. His life was one perpetual combat

with the Sophists. His manner of instruction was by conversation, in which, according to the uniform testimony of all who heard him, he singularly excelled. He resorted to definitions, and therefrom drew deductions, conveying his argument under the form of a dialogue. Unlike his predecessors, who sought for truth in the investigation of outward things, he turned his attention inward, asserting the supremacy of virtue and its identity with knowledge, and the necessity of an adherence to the strict principles of justice. Considering the depraved condition to which the Sophists had reduced society, he insisted on a change in the manner of education of youth, so as to bring it in accordance with the principle that happiness is only to be found in the pursuit of virtue and goodness. Thus, therefore, he completely substituted the moral for the physical, and in this essentially consists the philosophical revolution he effected. He had no school, properly speaking,

Greek philosophy on the basis of ethics.

Socrates: his mode of teaching.

nor did he elaborate any special ethical system; for to those who inquired how they should know good from evil and right from wrong, he recommended the decisions of the laws of their country. It does not appear that he ever entered on any inquiry respecting the nature of God, simply viewing his existence as a fact of which The doctrines of Socrates. there was abundant and incontrovertible proof. Though rejecting the crude religious ideas of his nation, and totally opposed to anthropomorphism, he carefully avoided the giving of public offense by improper allusions to the prevailing superstition; nay, even as a good citizen, he set an example of conforming to its requirements. In his judgment, the fault of the Sophists consisted in this, that they had subverted useless speculation, but had substituted no scientific convictions for it. Nevertheless, if man did not know, he might believe, and demonstration might be profitably supplanted by faith. He therefore insisted on the great doctrines of the immortality of the soul and the government of the world by Providence; but it is not to be denied that there are plain indications, in some of his sentiments, that the Supreme Being is the soul of the world. He professed that his own chief wisdom consisted in the knowledge of his own ignorance, and dissuaded his friends from the cultivation of mathematics and physics, since he affirmed Opposes mathematics and physics. that the former lead to vain conclusions, the latter to atheism. In his system every thing turns on the explanation of terms; but his processes of reasoning are often imperfect, his conclusions, therefore, liable to be incorrect. In this way, he maintained that no one would knowingly commit a wrong act, because he that knew a thing to be good would do it; that it is only involuntarily that the bad are bad; that he who knowingly tells a lie is a better man than he who tells a lie in ignorance; and that it is right to injure one's enemies.

From such a statement of the philosophy of Socrates, we can not fail to remark how superficial it must have been; it perpetually Superficiality of his views. mistakes differences of words for distinctions of things; it also possessed little novelty. The enforcement of morality can not be regarded as any thing new, since probably there has never been an age in which good men were not to be found, who observed, as their rule of life, the maxims taught by Socrates; and hence we may reasonably inquire what it was that has spread over the name of this great man such an unfading lustre, and why he stands out in such extraordinary prominence among the benefactors of his race.

Socrates was happy in two things: happy in those who recorded his life, and happy in the circumstances of his death. It is Causes of the celebrity of Socrates. not given to every great man to have Xenophon and Plato for his biographers; it is not given to every one who has overpassed the limit of life, and, in the natural course of events, has but a little longer to continue, to attain the crown of martyrdom in behalf of

virtue and morality. In an evil hour for the glory of Athens, his countrymen put him to death. It was too late when they awoke and saw that they could give no answer to the voice of posterity, demanding why they had perpetrated this crime. With truth Socrates said, at the close of his noble speech to the judges who had condemned him, "It is now time that we depart—I to die, you to live; but which has the better destiny is unknown to all except God." The future has resolved that doubt. For Socrates there was reserved the happier lot.

No little obscurity still remains upon the true nature of this dark transaction. The articles of accusation were three: he rejects the gods of his country; he introduces new ones; he perverts the education of youth. With truth might his friends say that it was wonderful that he should be accused of impiety, the whole tenor of whose life was reverence for God—a recognition not only of the divine existence, but of the divine superintendence. "It is only a madman," he would say, "who imputes success in life to human prudence;" and as to the necessity of a right education for the young, "It is only the wise who are fit to govern men." We must conclude that the accusations were only ostensible or fictitious, and that beneath them lay some reality which could reconcile the Athenians to the perpetration of so great a crime.

Shall we find in his private life any explanation of this mystery? Unfortunately, the fragments which have descended to us are few. To the investigations of classical criticism we can scarcely look with any hope, for classical criticism has hitherto been in a state of singular innocence, so far as the actual affairs of life are concerned. It regards Athenians and Romans not as men and women like ourselves, but as the personages presented by fictitious literature, whose lives are exceptions to the common laws of human nature; who live in the midst of scenes of endless surprises and occurrences ever bordering on the marvelous.

If we examine the case according to every-day principles, we can not fail to remark that the Socrates of our imagination is a very different man from the Socrates of contemporaneous Athenians. To us he appears a transcendent genius, to whom the great names of antiquity render their profound homage; a martyr in behalf of principles, of which, if society is devoid, life itself is scarcely of any worth, and for the defense of which it is the highest glory that a man should be called upon to die. To them Socrates was no more than an idle loungeur in the public places and corners of the streets; grotesque, and even repulsive in his person; affecting in the oddities of his walking and in his appearance many of the manners of the mountebank. Neglecting the pursuit of an honest calling, for his trade seems to have been that of a stone-cutter, he wasted his time in discoursing with such youths as his lecherous countenance and satyr-like person could gather

The ostensible
accusations
against him.

The character
of Socrates in
Athens.

around him, leading them astray from the gods of his country, the flimsy veil of his hypocrisy being too transparent to conceal his infidelity. Nevertheless, he was a very brave soldier, as those who served with him testify. It does not appear that he was observant of those cares which by most men are properly considered as paramount, giving himself but little concern for the support of his children and wife. The good woman Xantippe is, to all appearance, one of those characters who are unfairly judged of by the world. Socrates married her because of her singular conversational powers; and though he himself, according to universal testimony, possessed extraordinary merits in that respect, he found to his cost, when too late, that so commanding were her excellencies that he was altogether her inferior. Among the amusing instances related of his domestic difficulties were the consequences of his invitations to persons to dine with him when there was nothing in the house wherewith to entertain them, a proceeding severely trying to the temper of Xantippe, whose cause would unquestionably be defended by the matrons of any nation. It was nothing but the mortification of a high-spirited woman at the acts of a man who was too shiftless to have any concern for his domestic honor. He would not gratify her urgent entreaties by accepting from those upon whom he lavished his time the money that was so greatly needed at home. After his condemnation, she carried her children with her to his prison, and was dismissed by him, as he told his friends, from his apprehension of her deep distress. To the last we see her bearing herself in a manner honorable to a woman and a wife. There is surely something wrong in a man's life when the mother of his children is protesting against his conduct, and her complaints are countenanced by the community. In view of all the incidents of the history of Socrates, we can come to no other conclusion than that the Athenians regarded him as an unworthy, and perhaps troublesome member of society. There can be no doubt that his trial and condemnation were connected with political measures. He himself said that he should have suffered death previously, He is really the victim of political animosity. in the affair of Leon of Salamis, had not the government been broken up. His bias was toward aristocracy, not toward democracy. In common with his party, he had been engaged in undertakings that could not do otherwise than entail mortal animosities; and it is not to be overlooked that his indictment was brought forward by Anytus, who was conspicuous in restoring the old order of things. The mistake made by the Athenians was in applying a punishment altogether beyond the real offense, and in adding thereto the persecution of those who had embraced the tenets of Socrates by driving them into exile. Not alone admiration for the memory of their master, but a recollection of their own wrongs, made these men eloquent eulogists. Had Socrates appeared to the Athenians as he appears to us, it is not consistent with

human proceedings that they should have acted in so barbarous and totally indefensible a manner.

If by the Dæmon to whose suggestions Socrates is said to have listened any thing more was meant than conscience, we must infer that he labored under that mental malady to which those are liable who, either through penury or designedly, submit to extreme abstinence, and, thereby injuring the brain, fall into hallucination. Such cases are by no means of infrequent occurrence. Mohammed was affected in that manner.

After the death of Socrates there arose several schools professing to be founded upon his principles. The divergences they exhibited when compared with one another prove how little there was of precision in those principles. Among these imitators is numbered The Megaric school. The wise should be insensible to pain. Euclid of Megara, who had been in the habit of incurring considerable personal risk for the sake of listening to the great teacher, it being a capital offense for a native of Megara to be found in Athens. Upon their persecution, Plato and other disciples of Socrates fled to Euclid, and were well received by him. His system was a mixture of the Eleatic and Socratic, the ethical preponderating in his doctrine. He maintained the existence of one Being, the Good, having various aspects—Wisdom, God, Reason, and showed an inclination to the tendency afterward fully developed by the Cynical school in his dogma that the wise man should be insensible to pain.

With the Megaric school is usually classified the Cyrenaic, founded The Cyrenaic school. Pleasure is the object of life. by Aristippus. Like Socrates, he held in disdain physical speculations, and directed his attention to the moral. In his opinion, happiness consists in pleasure; and, indeed, he recognized in pleasure and pain the criteria of external things. He denied that we can know any thing with certainty, our senses being so liable to deceive us; but, though we may not perceive things truly, it is true that we perceive. With the Cyrenaic school, pleasure is the great end and object of life.

To these may be added the Cynical school, founded by Antisthenes, whose system is personal and ferocious: it is a battle of the mind against the body; it is a pursuit of pleasure of a mental kind, corporeal enjoyment being utterly unworthy of a man. Its nature is very well shown in the character of its founder, who abandoned all the conveniences and comforts of life, voluntarily encountering poverty and exposure to the inclemency of the seasons. His garments were of the meanest kind, his beard neglected, his person filthy, his diet bordering on starvation. To the passers-by this ragged misanthrope indulged in contemptuous language, and offended them with the indecency of his gestures. Abandoned at last by every one except Diogenes of Sinope, he expired in the extreme of

wretchedness. It had been a favorite doctrine with him that Antisthenes. friendship and patriotism are altogether worthless; and in his last agony, Diogenes asking him whether he needed a friend, "Will a friend release me from this pain?" he inquired. Diogenes handed him a dagger, saying, "This will." "I want to be free from pain, but not from life." Into such degradation had philosophy fallen, as represented by the Cynical school, that it may be doubted whether it is right to include a man like Antisthenes among those who derive their title from their love of wisdom—a man who condemned the knowledge of reading and writing, who depreciated the institution of marriage, and professed that he saw no other advantage from philosophy than that it enabled him to keep company with himself.

The wretched doctrines of Cynicism were carried to their utmost application by Diogenes of Sinope. In early life he had been accustomed to luxury and ease; but his father, who was a ^{Diogenes of Sinope.} wealthy banker, having been convicted of debasing the coinage, Diogenes, who in some manner shared in the disgrace, was in a very fit state of mind to embrace doctrines implying a contempt for the goods of the world and for the opinions of men. He may be considered as the prototype of the hermits of a later period in his attempts at the subjugation of the natural appetites by means of starvation. Looking upon the body as a mere clog to the soul, he mortified it in every possible manner, feeding it on raw meat and leaves, and making it dwell in a tub. He professed that the nearer a man approached to suicide the nearer he approached to virtue. He wore no other dress than a scanty cloak; a wallet, a stick, and a drinking-cup completed his equipment: the cup he threw away as useless on seeing a boy take water in the hollow of his hand. It was his delight to offend every idea of social decency by performing all the acts of life publicly, asserting that whatever is not improper in itself ought to be done openly. It is said that his death, which occurred in his ninetieth year, was in consequence of devouring a neat's foot raw. From his carrying the Socratic notions to an extreme, he merits the designation applied to him, "the mad Socrates." His contempt for the opinions of others, and his religious disbelief, are illustrated by an incident related of him, that, having in a moment of weakness made a promise to some friends that he would offer a sacrifice to Diana, he repaired the next day to her temple, and, taking ^{His irreverence.} a louse from his head, cracked it upon her altar.

What a melancholy illustration of the tendency of the human mind do these facts offer. What a quick, yet inevitable descent from the morality of Socrates. Selfishness is enthroned; friendship ^{Decline of morality.} and patriotism are looked upon as the affairs of a fool: happy is the man who stands in no need of a friend; still happier he who has not one. No action is intrinsically bad; even robbery, adultery, sacrilege,

are only crimes by public agreement. The sage will take care how he indulges in the weakness of gratitude or benevolence, or any other such sickly sentiment. If he can find pleasure, let him enjoy it; if pain is inflicted on him, let him bear it; but, above all, let him remember that death is just as desirable as life.

If the physical speculations of Greece had ended in sophistry and atheism, ethical investigations, it thus appears, had borne no better fruit. Both systems, when carried to their consequences, had been found to be not only useless to society, but actually prejudicial to its best interests. As far as could be seen, in the times of which we are speaking, the prospects for civilization were dark and discouraging; nor did it appear possible that any successful attempts could be made to extract from philosophy any thing completely suitable to the wants of man. Yet, in the midst of these discreditable delusions, one of the friends and disciples of Socrates—indeed, it may be said, his chief disciple, Plato, was laying the foundation of another system, which, though it contained much that was false and more that was vain, contained also some things vigorous enough to descend to our times.

Plato was born about B.C. 426. Antiquity has often delighted to cast Birth of Plato. a halo of mythical glory around its illustrious names. The immortal works of its great philosopher seemed to entitle him to more than mortal honors. A legend, into the authenticity of which we will abstain from inquiring, asserted that his mother Perictione, a pure virgin, suffered an immaculate conception through the influences of Apollo. The god declared to Ariston, to whom she was about to be married, the parentage of the child. The wisdom of this great writer may justify such a noble descent, and, in some degree, excuse the credulity of his admiring and affectionate disciples, who gave a ready ear to the stupendous and idle story.

To the knowledge acquired by Plato during the eight or ten years he had spent with Socrates, he added all that could be obtained from the philosophers of Egypt, Cyrene, Persia, and Tarentum. With every advantage arising from wealth and an illustrious parentage, if even it was only of an earthly kind, for he numbered Solon among his ancestors, he His education and teaching. availed himself of the teaching of the chief philosophers of the age, and at length, returning to his native country, founded a school in the grove of Hecademus. Thrice during his career as a teacher he visited Sicily, on each occasion returning to the retirement of his academy. He attained the advanced age of eighty-three years. It has been given to few men to exercise so profound an influence on the opinions of posterity, and yet it is said that during his lifetime Plato had no friends. He quarreled with most of those who had been his fellow-disciples of Socrates; and, as might be anticipated from the venerable age to which he attained, and the uncertain foundation upon which his doc-

trines reposed, his opinions were very often contradictory, and his philosophy exhibited many variations. To his doctrines we must now attend.

It was the belief of Plato that matter is coeternal with God, and that, indeed, there are three primary principles—God, Matter, The doctrines of Plato. The three primary principles. Ideas; all animate and inanimate things being fashioned by God from matter, which, being capable of receiving any impression, may be designated with propriety the Mother of Forms. He held that intellect existed before such forms were produced, but not antecedently to matter. To matter he imputed a refractory or resisting quality, the origin of the disorders and disturbances occurring in the world; he also regarded it as the cause of evil, accounting thereby for the preponderance of evil, which must exceed the good in proportion as matter exceeds ideas. It is not without reason, therefore, that Plato has been accused of Magianism. These doctrines are of an Oriental cast.

The existence of God, an independent and personal maker of the world, he inferred from proofs of intelligence and design presented by natural objects. He asserts the existence of a personal God. "All in the world is for the sake of the rest, and the places of the single parts are so ordered as to subserve to the preservation and excellency of the whole; hence all things are derived from the operation of a Divine intellectual cause." From the marks of unity in that design he deduced the unity of God, whom he regarded as the Supreme Intelligence, incorporeal, without beginning, end, or change. His god is the fashioner and father of the universe, in contradistinction to impersonal Nature. In one sense, he taught that the soul is immortal and imperishable; in another, he denied that each individual soul either has had or will continue to have an everlasting duration. From what has been said on a former page, it will be understood that this psychological doctrine is essentially Indian. His views of the ancient condition and former relations of the soul enabled Plato to introduce the celebrated doctrine of Reminiscence, and to account for what have otherwise been termed innate ideas. Nature of the soul. They are the recollections of things with which the soul was once familiar.

The reason of God contemplates and comprehends the exemplars or original models of all natural forms, whatever they may be; for visible things are only fleeting shadows, quickly passing away; ideas or exemplars are everlasting. With so much power did he set forth Plato's Ideal theory. this theory of ideas, and, it must be added, with so much obscurity, that some have asserted an extramundane space in which exist incorporeal beings, the ideas or original exemplars of all organic and inorganic forms. An illustration may remove some of the obscurity of these views. Thus all men, though they may present different appearances when compared with each other, are obviously fashioned upon the

same model, to which they all more or less perfectly conform. All trees of the same kind, though they may differ from one another, are, in like manner, fashioned upon a common model, to which they more or less perfectly conform. To such models, exemplars or types, Plato gave the designation of Ideas. Our knowledge thereof is clearly not obtained from the senses, but from reflection. Now Plato asserted that these ideas are not only conceptions of the mind, but actually perceptions or entities having a real existence; nay, more, that they are the only real existences. Objects are thus only material embodiments of ideas, and in representation are not exact; for correspondence between an object and its model is only so far as circumstances will permit. Hence we can never determine all the properties or functions of the idea from an examination of its imperfect material representation, any more than we could discover the character or qualities of a man from pictures of him, no matter how excellent those pictures might be.

The Ideal theory of Plato, therefore, teaches that, beyond this world of delusive appearances, this world of material objects, there is another world, invisible, eternal, and essentially true; that, though we can not trust our senses for the correctness of the indications they yield, there are other impressions upon which we may fall back to aid us in coming to the truth, the reminiscences or recollections still abiding in the soul of the things it formerly knew, either in the realm of pure ideas, or in the states of former life through which it has passed. For Plato says that there are souls which, in periods of many thousand years, have successively transmigrated through bodies of various kinds. Of these various conditions they retain a recollection, more faintly or vividly, as the case may be. Ideas seeming to be implanted in the human mind, but certainly never communicated to us by the senses, are derived from those former states. If this recollection of ancient events and conditions were absolutely precise and correct, then man would have an innate means for determining the truth. But such reminiscences being, in their nature, imperfect and uncertain, we never can attain to absolute truth. With Plato, the Beautiful is the perfect image of the true. Love is the longing of the soul for beauty, the attraction of like for like, the longing of the divinity within us for the divinity beyond us; and the Good, which is beauty, truth, justice, is God—God in his abstract state.

From the Platonic system it therefore followed that science is impossible to man, and possible only to God; that, however, recollecting our origin, we ought not to despair, but elevate our intellectual aim as far as we may; that all knowledge is not attributable to our present senses; for, if that were the case all men would be equally wise, their senses being equal in every large portion, and by far the surest

portion, is derived from reminiscence of our former states; that each individual soul is an idea; and that, of ideas generally, the lower are held together by the higher, and hence, finally, by one which is supreme; that God is the sum of ideas, and is therefore eternal and unchangeable, the sensuous conditions of time and space having no relation to him, and inapplicable in any conception of his attributes; that he is the measure of all things, and not man, as Protagoras supposed; that the universe is a type of him; that matter itself is an absolute negation, and is the same as space; that the forms presented by our senses are unsubstantial shadows, and no reality; that, so far from there being an infinity of worlds, there is but one, which, as the work of God, is neither subject to age nor decay, and that it consists of a body and a soul; in another respect it may be said to be composed of fire and earth, which can only be made to cohere through the intermedium of air and water, and hence the necessity of the existence of the four elements; that, of geometrical forms, the pyramid corresponds to fire, the cube to earth, the octahedron to air, these forms being produced from triangles connected by certain numerical ratios; that the entire sum of vitality is divided by God into seven parts, answering to the divisions of the musical octave, or to the seven planets; that the world is an animal having within it a soul; for man is warm, and so is the world; man is made of various elements, and so is the world; and, as the body of man has a soul, so too must the world have one; that there is a race of created, generated, and visible gods, who must be distinguished from the eternal, their bodies being composed for the most part of fire, and in shape spherical; that the earth is the oldest and first of the starry bodies, its place being in the centre of the universe, or in the axis thereof, where it remains, balanced by its own equilibrium; perhaps it is an ensouled being and a generated god; that the mortal races are three, answering to Earth, Air, and Water; that the male man was the first made of mortals, and that from him the female, and beasts, and birds, and fishes issued forth; that the superiority of man depends upon his being a religious animal; that each mortal consists of two portions, a soul and a body—their separation constitutes death; that of the soul there are two primitive component parts, a mortal and an immortal, the one being made by the created gods, and the other by the Supreme; that for the purpose of uniting these parts together it is necessary that there should be an intermedium, and that this is the dæmonic portion or spirit; that our mental struggles arise from this triple constitution of Appetite, Spirit, and Reason; that Reason alone is immortal, and the others die; that the number of souls in the universe is invariable or constant; that the sentiment of pre-existence proves the soul to have existed before the body; that, since the soul is the cause of motion, it can neither be pro-

God is the sum of ideas.

The nature of the world and of the gods.

Triple constitution of the soul.

duced nor decay, else all motion must eventually cease; that, as to the condition of departed souls, they hover as shades around the graves, pining for restoration to their lifeless bodies, or migrating through various human or brute shapes, but that an unembodied life in God is reserved for the virtuous philosopher; that valor is nothing but knowledge, and virtue a knowledge of good; that the soul, on entering the body, is irrational or in a trance, and that the god, the star who formed its created part, influences its career, and hence its fortunes may be predicted by astrological computations; that there are future rewards and punishments, a residence being appointed for the righteous in his kindred star; for those whose lives have been less pure there is a second birth under the form of a woman, and, if evil courses are still persisted in, successive transmigrations through various brutes are in reserve—the frivolous passing into birds, the unphilosophical into beasts, the ignorant into fishes; that the world undergoes periodical revolutions by fire and water, its destructions and reproductions depending upon the coincidences of the stars. Of Plato's views of human physiology I can offer no better statement than the following from Ritter: "All in the human body is formed for the sake of the Reason, after certain determinate ends. Accordingly, first of all, a seat must be provided for the god-like portion of the soul, the head, viz., which is round, and similar to the perfect shape of the whole, furnished with the organs of cognition, slightly covered with flesh, which impedes the senses. To the head is given the direction of the whole frame, hence its position at the top; and, since the mortal creation possesses all the six irregular motions, and the head ought not to roll upon the ground, the human form is long in its form, with legs for walking and arms for serving the body, and the anterior part is fashioned differently from the posterior. Now, the reason being seated in the head, the spirit or irascible soul has its seat in the breast, under the head, in order that it may be within call and command of the Reason, but yet separated from the head by the neck, that it might not mix with it. The concupiscible has likewise its particular seat in the lower part of the trunk, the abdomen, separated by the diaphragm from that of the irascible, since it is destined, being separate from both, to be governed and held in order both by the spirit and the Reason. For this end God has given it a watch, the liver, which is dense, smooth, and shining, and, containing in combination both bitter and sweet, is fitted to receive and reflect, as in a mirror, the images of thoughts. Whenever the Reason disapproves, it checks inordinate desires by its bitterness, and, on the other hand, when it approves, all is soothed into gentle repose by its sweetness; moreover, in sleep, or sickness, or in inspiration it becomes prophetic, so that even the vilest portion of the body is in a certain degree participant of truth. In other respects the lower

Transmigration and
future rewards and
punishments.

The physiolo-
gy of Plato.

portion of the trunk is fashioned with equal adaptation for the ends it has to serve. The spleen is placed on the left side of the liver, in order to secrete and carry off the impurities which the diseases of the body might produce and accumulate. The intestines are coiled many times, in order that the food may not pass too quickly through the body, and so occasion again an immoderate desire for more; for such a constant appetite would render the pursuit of philosophy impossible, and make man disobedient to the commands of the divinity within him."

The reader will gather from the preceding paragraph how much of wisdom and of folly, of knowledge and of ignorance, the doctrines of Plato present. I may be permitted to continue this analysis of his writings a little farther, with the intention of exhibiting the manner in which he carried his views into practice; for Plato asserted that, though the supreme good is unattainable by our reason, we must try to resemble God as far as it is possible for the changeable to copy ^{His ethical ideas.} the eternal; remembering that pleasure is not the end of man, and, though the sensual part of the soul dwells on eating and drinking, riches and pleasure, and the spiritual on worldly honors and distinctions, the reason is devoted to knowledge. Pleasure, therefore, can not be attributed to the gods, though knowledge may; pleasure, which is not a good in itself, but only a means thereto. Each of the three parts of the soul has its own appropriate virtue, that of reason being wisdom; that of the spirit, courage; that of the appetite, temperance; and, for the sake of perfection, justice is added for the mutual regulation of the other three.

In carrying his ethical conceptions into practice, Plato insists that the state is every thing, and that what is in opposition to it ought ^{His proposed political institutions.} to be destroyed. He denies the right of property; strikes at the very existence of the family, pressing his doctrines to such an extreme as to consider women as public property, to be used for the purposes of the state; he teaches that education should be a governmental duty, and that religion must be absolutely subjected to the politician; that children do not belong to their parents, but to the state; that the aim of government should not be the happiness of the individual, but that of the whole; and that men are to be considered not as men, but as elements of the state, a perfect subject differing from a slave only in this, that he has the state for his master. He recommends the exposure of deformed and sickly infants, and requires every citizen to be initiated into every species of falsehood and fraud. Distinguishing between mere social unions and true politics, and insisting that there shall be an analogy between the state and the soul as respects triple constitution, he establishes a division of ruler, warriors, and laborers, preferring, therefore, a monarchy reposing on aristocracy, particularly of talent. Though he considers music essential to education, his opinion of the fine arts is

so low that he would admit into his state painters and musicians only under severe restrictions, or not at all. It was for the sake of having this chimerical republic realized in Sicily that he made a journey to Dionysius; and it may be added that it was well for those whom he hoped to have subjected to the experiment that his wild and visionary scheme was never permitted to be carried into effect. In our times, extravagant social plans have been proposed, and some have been attempted; but we have witnessed nothing so absurd as this vaunted republic of Plato. It shows a surprising ignorance of the acts and wants of man in his social condition.

Some of the more important doctrines of Plato are worthy of farther reflection. I shall therefore detain the reader for a short time to offer a few remarks upon them.

It was a beautiful conception of this philosophy that ideas are connected together by others of a higher order, and these, in their turn, by others still higher, their generality and power increasing as we ascend, until finally a culminating point is reached—a last, a supreme, an all-ruling Idea, which is God. Approaching in this elevated manner to the doctrine of an Almighty Being, we are free from those fallacies we are otherwise liable to fall into when we mingle notions derived from time and space with the attributes of God; we also avoid those obscurities necessarily encountered when we attempt the consideration of the illimitable and eternal.

Plato's views of the immortality of the soul offer a striking contrast and of the soul. to those of the popular philosophy and superstition of his time. They recall, in many respects, the doctrines of India. In Greece, those who held the most enlarged views entertained what might be termed a doctrine of semi-immortality. They looked for a continuance of the soul in an endless futurity, but gave themselves no concern about the eternity which is past. But Plato considered the soul as having already eternally existed, the present life being only a moment in our career; he looked forward, with an undoubting faith, to the changes through which we must hereafter go. As sparks issue forth from a flame, so doubtless to his imagination did the soul of man issue forth from the soul of the world. Innate ideas and the sentiment of pre-existence indicate our past life. By the latter is meant that on some occasion perhaps of trivial concern, or perhaps in some momentous event, it suddenly occurs to us that we have been in like circumstances, and surrounded by the things at that instant present on some other occasion before; but the recollection, though forcibly impressing us with surprise, is misty and confused. With Plato shall we say it was in one of our prior states of existence, and the long-forgotten transactions are now suddenly flashing upon us?

But Plato did not know the double structure and the double action

of the brain of man; he did not remember that the mind may lose all recognition of the lapse of time, and, with equal facility, compress into the twinkling of an eye events so numerous that for their occurrence days and even years would seem to be required; or, conversely, that it can take a single, a simple idea, which one would suppose might be disposed of in a moment, and dwell upon it, dilating or swelling it out, until all the hours of a long night are consumed. Of the truth of these singular effects we have not only such testimony as that offered by those who have been restored from death by drowning, who describe the flood of memory rushing upon them in the last moment of their mortal agony, the long train of all the affairs in which they have borne a part seen in an instant, as we see the landscape, with all its various objects, by a flash of lightning at night, and that with appalling distinctness, but also from our own experience in our dreams. It is shown in my *Physiology* how the phenomena of the sentiment of pre-existence may, upon these principles, be explained, each hemisphere of the brain thinking for itself, and the mind deluded as respects the lapse of time, mistaking these simultaneous actions for successive ones, and referring one of the two impressions to an indistinct and misty past. To Plato such facts as these afforded copious proofs of the prior existence of the soul, and strong foundations for a faith in its future life.

Thus Plato's doctrine of the immortality of the soul implies a double immortality; the past eternity, as well as that to come, falls within its scope. In the national superstition of his time, the spiritual principle seemed to arise without author or generator, finding its chance residence in the tabernacle of the body, growing with its growth and strengthening with its strength, acquiring for each period of life a correspondence of form and of feature with its companion the body, successively assuming the appearance of the infant, the youth, the adult, the white-bearded patriarch. The shade who wandered in the Stygian fields, or stood before the tribunal of Minos to receive his doom, was thought to correspond in aspect with the aspect of the body at death. It was thus that Ulysses recognized the forms of Patroclus and Achilles, and other heroes of the ten years' siege; it was thus that the peasant recognized the ghost of his enemy or friend. As a matter of superstition, these notions had their use, but in a philosophical sense it is impossible to conceive any thing more defective.

The state of man differs from that of a lifeless body or a brute in this, that it is not alone with the present moment that he has to deal, or that the past, when gone, is clean gone forever, and that the future, before it approaches, is as if it was never to be. Man, by his recollection, makes the past a part of the present, and his foreknowledge adds the future thereto, thereby coalescing the three in one.

But this arises from the anatomical construction of the brain.

The double immortality, past and future.

Relations of the past and future to man.

Some of the illustrations commonly given of Plato's Ideal theory may also be instructively used for showing the manner in which his facts are dealt with by the methods of modern science. Thus Plato would say that there is contained in every acorn the ideal type of an oak, in accordance with which, as soon as suitable circumstances occur, the acorn will develop itself into an oak, and into no other tree. In that act of development of such a seed into its final growth there are, therefore, two things demanding attention, the intrinsic character of the seed and the external forces acting upon it. The Platonic doctrine draws such a distinction emphatically; its essential purpose is to assert the absolute existence and independence of that innate type and its imperishability. Though it requires the agency of external circumstances for its complete realization, its being is altogether irrespective of them. There are, therefore, in such a case, two elements concerned—an internal and an external. A like duality is perceived in many other physiological instances, as in the relationship of mind and matter, thought and sensation. It is the aim of the Platonic philosophy to magnify the internal at the expense of the external in the case of man, thereby asserting the absolute supremacy of intellect; this being the particular in which man is distinguished from the brutes and lower organisms, in whom the external relatively predominates. The development of any such organism, be it plant or animal, is therefore nothing but a manifestation of the Divine idea of Platonism. Many instances of natural history offer striking illustrations, as when that which might have been a branch is developed into a flower, the parts thereof showing a disposition to arrange themselves by fives or by threes. The persistency with which this occurs in organisms of the same species is, in the Platonic interpretation, a proof that, though individuals may perish, the idea is immortal. How else, in this manner, could the like extricate itself from the unlike; the one deliver itself from, and make itself manifest among the many?

Such is an instance of Plato's views; but the very illustration, thus serving to bring them so explicitly before us, may teach us another, and, perhaps, a more correct doctrine. For, considering the duality presented by such cases, the internal and external, the immortal hidden type and the power acting upon it without, the character and the circumstances, may we not pertinently inquire by what authority does Plato diminish the influence of the latter and enhance the value of the former? Why are facts to be burdened with such hypothetical creations, when it is obvious that a much simpler explanation is sufficient? Let us admit, as our best physiological views direct, that the starting-point of every organism, low or high, vegetable or animal, or whatever else, is a simple cell, the manner of development of which depends altogether on the circumstances and influences to which it is exposed; that, so

long as those circumstances are the same the resulting form will be the same, and that as soon as those circumstances differ the resulting form differs too. The offspring is like its parent, not because it includes an immortal typical form, but because it is exposed in development to the same conditions as was its parent. Elsewhere I have endeavored to show that we must acknowledge this absolute dominion of physical agents over organic forms as the fundamental principle in all the sciences of organization; indeed, the main object of my work on *Physiology* was to enforce this very doctrine. But such a doctrine is altogether inconsistent with the Ideal theory of Platonism. It is no latent imperishable type existing from eternity that is dominating in such developments, but they take place as the issue of a resistless law, variety being possible under variation of circumstances. Hence we may perhaps excuse ourselves from that suprasensual world in which reside typical forms, universals, ideas of created things, declining this complex machinery of Platonism, and substituting for it a simple notion of law. Nor shall we find, if from this starting-point we direct our thoughts upward, as Plato did from subordinate ideas to the First Idea, any thing incompatible with the noble conclusion to which he eventually came, any thing incompatible with the majesty of God, whose existence and attributes may be asserted with more precision and distinctness from considerations of the operation of immutable law than they can be from the starting-point of fantastic, imaginary, ideal forms.

We have seen how the pre-Socratic philosophy ended in the Sophists; we have now to see how the post-Socratic ended in the Sceptics. Again was repeated the same result exhibited in former times, that the doctrines of the different schools, even those supposed to be matters of absolute demonstration, were not only essentially different, but in contradiction to one another. Again, therefore, the opinion was resumed that the intellect of man possesses no criterion of the truth, being neither able to distinguish among the contradictions of the impressions of the senses, nor to judge of the correctness of philosophical deductions, nor even to determine the intrinsic morality of acts. And, if there be no criterion of truth, there can be no certain ground of science, and there remains nothing for us but doubt. Such was the conclusion to which Pyrrho, the founder of the Sceptics, came. He lived about B.C. 300. His philosophical doctrine of the necessity of suspending or refusing our assent from want of a criterion of judgment led by a natural transition to the moral doctrine that virtue and happiness consist in perfect quiescence or freedom from all mental perturbation. This doctrine, it is said, he had learned in India from the Brahmins, whither he had been in the expedition of Alexander. On his return to Europe he taught these views in his school at Elis; but Greek philosophy, in its own order of advancement, was verging on the discovery of these conclusions.

The Skeptical school was thus founded on the assertion that man can never ascertain the true among phenomena, and therefore can never know whether things are in accordance or discordance with their appearances, for the same object appears differently to us in different positions and at different times. Doubtless it also appears differently to various individuals. Among such appearances, how shall we select the true one, and, if we make a selection, how shall we be absolutely certain that we are right? Moreover, the properties we impute to things, such as color, smell, taste, hardness, and the like, are dependent upon our senses; but we very well know that our senses are perpetually yielding to us contradictory indications, and it is in vain that we expect Reason to enable us to distinguish with correctness, or furnish us a criterion of the truth. The Skeptical school thus made use of the weapons which the Sophists had so destructively employed, directing it, however, chiefly against ethics. But let us ascend a step higher. If we rely upon Reason, how do we know that Reason itself is reliable? Do we not want some criterion for it? And, even if such a criterion existed, must we not have for it, in its turn, some higher criterion? The Skeptic thus justified his assertion that to man there is no criterion of truth.

In accordance with these principles, the Skeptics denied that we can ever attain to a knowledge of existence from a knowledge of phenomena.

The doctrines of Pyrrho. They carried their doubt to such an extreme as to assert that we can never know the truth of any thing that we have asserted, no, not even the truth of this very assertion itself. "We assert nothing," say they; "no, not even that we assert nothing." They declare that the system of induction is at best only a system of probability, for an induction can only be certain when every one and all of the

No certainty in knowledge. individual things have been examined and demonstrated to agree with the universal. If one single exception among myriads of examples be discovered, the induction is destroyed. But how shall we be sure, in any one case, that we have examined all the individuals? therefore we must ever doubt. As to the method of definitions, it is clear that it is altogether useless; for, if we are ignorant of a thing, we can not define it, and if we know a thing, a definition adds nothing to our knowledge. In thus destroying definitions and inductions they destroyed all philosophical method.

But if there be this impossibility of attaining knowledge, what is the use of man giving himself any trouble about the matter? Is it not best to accept life as it comes, and enjoy pleasure while he may? And this is what Epicurus, B.C. 342, had already advised men to do. Like Socrates, he disparages science, and looks upon pleasure as the main object of life and the criterion of it. Asserting that truth can not be determined by Reason, philosophy in despair, or regards

it as an inferior or ineffectual means for contributing to happiness. In his view the proper division of philosophy is into Ethics, The doctrines of Epicurus. Canonic, and Physics, the two latter being of very little importance compared with the first. The wise man or sage must seek in an Oriental quietism for the chief happiness of life, indulging himself in a temperate manner as respects his present appetite, and adding thereto the recollection of similar sensual pleasures that are past, and the expectation of new ones reserved for the future. He must look on philosophy as the art of enjoying life. He should give himself no concern as to death or the power of the gods, who are only a delusion; none as respects a future state, remembering that the soul, which is nothing more than a congeries of atoms, is resolved into those constituents at death. There can be no doubt that such doctrines were very well suited to the times in which they were introduced; for so great was the social and political disturbance, so great the uncertainty of the tenure of property, that it might well be suggested what better could a man do than enjoy his own while it was yet in his possession? nor was the inducement to such a course lessened by the extravagant dissipations when courtesans and cooks, jesters and buffoons, splendid attire and magnificent appointments had become essential to life. Demetrius Poliorcetes, who understood the condition of things thoroughly, says, "There was not, in my time, in Athens, one great or noble mind." In such a social state, it is not at all surprising that Epicurus had many followers, and that there were many who agreed with him in thinking that happiness is best found in a tranquil indifference, and in Tranquil indifference is best for man. believing that there is nothing in reality good or bad; that it is best to decide upon nothing, but to leave affairs to chance; that there is, after all, little or no difference between life and death; that a wise man will regard philosophy as an activity of ideas and arguments which may tend to happiness; that its physical branch is of no other use than to correct superstitious fancies as to death, and remove the fear of meteors, prodigies, and other phenomena by explaining their nature; that the views of Democritus and Aristotle may be made to some extent available for the procurement of pleasure; and that we may learn from the brutes, who pursue pleasure and avoid pain, what ought to be our course. Upon the whole, it will be found that there is a connection between pleasure and virtue, especially if we enlarge our views and seek for pleasure, not in the gratification of the present moment, but in the aggregate offered by existence. The pleasures of the soul all originate in the pleasures of the flesh; not only those of the time being, but also those recollected in the past and anticipated in the future. The sage will therefore provide for all these, and, remembering that pain is in its nature transient, but pleasure is enduring, he will not hesitate to encounter the former if he can be certain that it will procure him the latter;

he will dismiss from his mind all idle fears of the gods and of destiny, for these are only fictions beneficial to women and the vulgar; yet, since they are the objects of the national superstition, it is needless to procure one's self disfavor by openly deriding them. It will therefore be better for the sage to treat them with apparent solemnity, or at least outward respect, though he may laugh at the imposition in his heart. As to the fear of death, he will be especially careful to rid himself therefrom, remembering that death is only a deliverer from the miseries of life.

Under the title of Canonic Epicurus delivers his philosophical views; Imperfections of the Canonic of Epicurus, they are, however, of a very superficial kind. He insists that our sensuous impressions are the criterion of truth, and that even the sensations of a lunatic and dreamer are true. But, besides the impressions of the moment, memory is also to be looked upon as a criterion—memory, which is the basis of experience.

In his Physics he adopts the Atomic theory of Democritus, though and contradictions of his Physics. in many respects it ill accords with his Ethics or Canonic; but so low is his esteem of its value that he cares nothing for that. Though atoms and a void are in their nature imperceptible to the senses, he acknowledges their existence, asserting the occurrence of an infinite number of atoms of different kinds in the infinite void, which, because of their weight, precipitate themselves perpendicularly downward with an equable motion; but some of them, through an unaccountable internal force, have deviated from their perpendicular path, and, sticking together after their collision, have given rise to the world. Not much better than these vague puerilities are his notions about the size of the sun, the nature of eclipses, and other astronomical phenomena; but he justifies his contradictions and superficiality by asserting that it is altogether useless for a man to know such things, and that the sage ought to give himself no trouble about them. As to the soul, he says that it must be of a material or corporeal nature, for this simple reason, that there is nothing incorporeal but a vacuum; he inclines to the belief that it is a rarefied body, easily movable, and somewhat of the nature of a vapor; he divides it into four activities, corresponding to the four elements entering into its constitution; and that, so far from being immortal, it is decomposed into its integral atoms, dying when the body dies. With the atomic doctrines of Democritus Epicurus adopts the notions of that philosopher respecting sensation, to the effect that eidola or images are sloughed off from all external objects, and find access to the brain through the eye. In his theology he admits, under the circumstances we have mentioned, anthropomorphic gods, pretending to account for their origin in the chance concurrence of atoms, and suggesting that they dispense His irreligion. and blessedness by giving themselves or his affairs. By such derisive

promptings does Epicurus mock at the religion of his country—its rituals, sacrifices, prayers, and observances. He offers no better evidence of the existence of God than that there is a general belief current among men in support of such a notion; but, when brought to the point, he does not hesitate to utter his disbelief in the national theology, and to declare that, in his judgment, it is blind chance that rules the world.

Such are the opinions to which the name of Epicurus has been attached; but there were Epicureans ages before that philosopher was born, and Epicureans there will be in all time to come. They abound in our own days, ever characterized by the same features—an intense egotism in their social relations, superficiality in their philosophical views, if the term philosophical can be justly applied to intellects so narrow; they manifest an accordance often loud and particular with the religion of their country, while in their hearts and in their lives they are utter infidels. * These are they who constitute the most specious part of modern society, and are often the self-proclaimed guardians of its interests. They are to be found in every grade of life; in the senate, in the army, in the professions, and especially in commercial pursuits, which, unhappily, tend too frequently to the development of selfishness. It is to them that society is indebted for more than half its corruptions, all its hypocrisy, and more than half its sins. It is they who infuse into it falsehood as respects the past, imposture as respects the present, fraud as respects the future; who teach it by example that the course of a man's life ought to be determined upon principles of selfishness; that gratitude and affection are well enough if displayed for effect, but that they should never be felt; that men are to be looked upon not as men, but as things to be used; that knowledge and integrity, patriotism and virtue, are the delusions of simpletons; and that wealth is the only object which is really worthy of the homage of a man.

It now only remains in this chapter to speak of the later Platonism. The Old Academy, of which Plato was the founder, limited its labors to the illustration and defense of his doctrines. The Middle Academy, originating with Arcesilaus, born B.C. 316, maintained a warfare with the Stoics, developed the doctrine of the uncertainty of sensual impressions and the nothingness of human knowledge. The New Academy was founded by Carneades, born B.C. 213, and participated with the preceding in many of its fundamental positions. On the one side Carneades leans to skepticism, on the other he accepts probability as his guide. This school so rapidly degenerated that at last it occupied itself with rhetoric alone. The gradual increase of skepticism and indifference throughout this period is obvious enough; thus Arcesilaus said that he knew nothing, not even his own ignorance, and denied both intellectual and sensuous knowledge. Carneades, obtaining his views from the old philosophy, found

Epicureans of modern times.

The Middle Academy of Arcesilaus.

The New Academy of Carneades.

therein arguments suitable for his purpose against necessity, God, sooth-saying; he did not admit that there is any such thing as justice in the abstract, declaring that it is a purely conventional thing; indeed, it was his rhetorical display, alternately in praise of justice and against it, on the occasion of his visit to Rome, that led Cato to have him expelled from the city. Though Plato had been the representative of an age of faith, a secondary analysis of all his works, implying an exposition of their contradictions, ended in skepticism. If we may undertake to determine the precise aim of a philosophy whose representatives stood in such an attitude of rhetorical duplicity, it may be said to be the demonstration that there is no criterion of truth in this world. Persuaded thus of the impossibility of philosophy, Carneades was led to recommend his theory of the probable. "That which has been most perfectly analyzed and examined, and found to be devoid of improbability, is the most probable idea." The degeneration of philosophy now became truly complete, the labors of so many great men being degraded to rhetorical and artistic purposes. It was seen by all that Plato had destroyed all trust in the indications of the senses, and substituted for it the Ideal theory. Aristotle had destroyed that, and

The duplicity of the later Academicians.

there was nothing left to the world but skepticism. A fourth Academy was founded by Philo of Larissa, a fifth by Antiochus of Ascalon. It was reserved for this teacher to attach the Porch to the Academy, and to merge the doctrines of Plato in those of the Stoics. Such a heterogeneous mixture demonstrates the pass to which speculative philosophy had come, and shows us clearly that her disciples had abandoned her in despair.

So ends the Greek age of Faith. How strikingly does its history recall the corresponding period of individual life—the trusting spirit and the disappointment of youth. We enter on it full of confidence in things and men, never suspecting that the one may disappoint, the other deceive. Our early experiences, if considered at all, afford only matter of surprise that we could ever have been seriously occupied in such folly, or actuated by motives now seeming so inadequate. It never occurs to us that, in our present state, though the pursuits may have changed, they are none the less vain, the objects none the less delusive.

End of the Greek age of Faith.

The second age of Greek philosophy ended in sophism, the third in skepticism. Speculative philosophy strikes at last upon a limit which it can not overpass. This is its state even in our own times. It reverberates against the wall that confines it without the least chance of making its way through.

CHAPTER VI.

THE GREEK AGE OF REASON.

RISE OF SCIENCE.

THE MACEDONIAN CAMPAIGN.—*Disastrous in its political Effects to Greece, but ushering in the Age of Reason.*

ARISTOTLE founds the Inductive Philosophy.—*His Method the Inverse of that of Plato.—Its great Power.—In his own hands it fails for want of Knowledge, but is carried out by the Alexandrians.*

ZENO.—*His Philosophical Aim is the Cultivation of Virtue and Knowledge.—He is in the Ethical Branch the Counterpart of Aristotle in the Physical.*

FOUNDATION OF THE MUSEUM OF ALEXANDRIA.—*The great Libraries, Observatories, Botanical Gardens, Menageries, Dissecting Houses.—Its Effect on the rapid Development of exact Knowledge. — Influence of Euclid, Archimedes, Eratosthenes, Apollonius, Ptolemy, Hipparchus, on Geometry, Natural Philosophy, Astronomy, Chronology, Geography.*

Decline of the Greek Age of Reason.

THE conquest of Persia by Alexander the Great is a most important event in European history. That adventurer, carrying out the intentions of his father Philip, commenced his attack with apparently very insignificant means, having, it is said, at the most, only thirty-four thousand infantry, four thousand cavalry, and seventy talents in money. ^{The Greek Invasion of Persia.} The result of his expedition was the ruin of the Persian empire, and also the ruin of Greece. It was not without reason that his memory was cursed in his native country. Her life-blood was drained away by his successes. In view of the splendid fortunes to be made in Asia, Greece ceased to be the place for an enterprising man. To such an extent did military emigration go, that Greek recruits were settled all over the Persian empire; their number was sufficient to injure irreparably the country from which they had parted, but not sufficient to hellenize the dense and antique populations among whom they had settled.

Not only was it thus by the drain of men that the Macedonian expedition was so dreadfully disastrous to Greece, the political consequences following those successful campaigns added to the baneful result. ^{Its ruinous effect on Greece.} Alexander could not have more effectually ruined Athens had he treated her as he did Thebes, which he leveled with the ground, massacring six thousand of her citizens, and selling thirty thousand for slaves. The founding of Alexandria was the commercial end of Athens, the finishing stroke to her old colonial system. It might have been well for her had he stopped short in his projects with the

downfall of Tyre, destroyed, not from any vindictive reasons, as is sometimes said, but because he discovered that that city was an essential part of the Persian system. It was never his intention that Athens should derive advantage from the annihilation of her Phœnician competitor; his object was effectually carried out by the building and prosperity of Alexandria.

Though the military celebrity of this great soldier may be diminished by the history of the last hundred years, which shows a uniform result of victory when European armies are brought in contact with Asiatic, even under the most extraordinary disadvantages, there can not be denied to him a profound sagacity and statesmanship excelled by no other conqueror. Before he became intoxicated with success, and, unfortunately, too habitually intoxicated with wine, there was much that was noble in his character. He had been under the instruction of Aristotle for several years, and, on setting out on his expedition, took with him so many learned men as almost to justify the remark applied to it, that it

was as much a scientific as a military undertaking. Among those who thus accompanied him was Callisthenes, a relation and pupil of Aristotle, destined for an evil end. Perhaps the assertion that Alexander furnished to his master nearly a million of dollars, and the services of several thousand men, for the purpose of obtaining and examining the specimens required in the composition of his work on the "History of Animals" may be an exaggeration, but there can be no doubt that in these transactions was the real beginning of that policy which soon led to the institution of the Museum at Alexandria.

The importance of this event, though hitherto little understood, admits of no exaggeration, so far as the intellectual progress of Europe is concerned. It gave to the works of Aristotle their wonderful duration; it imparted to them not alone a Grecian celebrity, but led to their translation into Syriac by the Nestorians in the fifth century, and from Syriac by the Arabs into their tongue four hundred years later. They exercised a living influence over Christians and Mohammedans indifferently, from Spain to Mesopotamia.

If the letter quoted by Plutarch as having been written by Alexander to Aristotle is authentic, it not only shows how thoroughly the pupil had been indoctrinated into the wisdom of the master, but warns us how liable we are to be led astray in the exposition we are presently to give of the Aristotelian philosophy. There was then, as unfortunately there has been too often since, a private as well as a public doctrine. Alexander upbraids the philosopher for his indiscretion in revealing things that it was understood should be concealed. Aristotle defends himself by asserting that the desired concealment had not been broken. By many other incidents of a trifling kind the attachment of the conqueror to philosophy is indicated; thus Harpalus and Nearchus, the

Injury to Athens
from the found-
ing of Alexan-
dria.

Scientific tendency
of the Macedonian
campaigns.

Origin of the influ-
ence of Aristotle
through Alexan-
der.

companions of his youth, were the agents employed in some of his scientific undertakings, the latter being engaged in sea explorations, doubtless having in the main a political object, yet full of interest to science. Had Alexander lived, Nearchus was to have repeated the circumnavigation of Africa. Harpalus, while governor of Babylon, was occupied in the attempt to exchange the vegetation of Europe and Asia; he intertransplanted the productions of Persia and Greece, succeeding, as is related, in his object of making all European plants that he tried grow in Mesopotamia except the ivy. The journey to the Caspian Sea, the expedition into the African deserts, indicate Alexander's personal taste for natural knowledge; nor is it without significance that, while on his deathbed, and, indeed, within a few days of his decease, he found consolation and amusement in having Nearchus by his bedside relating the story of his voyages. Nothing shows more strikingly how correct was his military perception than the intention he avowed of equipping a thousand ships for the conquest of Carthage, and thus securing his supremacy in the Mediterranean. Notwithstanding all this, there were many points of his character, and many events of his life, worthy of the condemnation with which they have been visited; the drunken burning of Persepolis, the prisoners he slaughtered in honor of Hephæstion, the hanging of Callisthenes, His unbridled passions and iniquities. were the results of intemperance and unbridled passion. Even so steady a mind as his was incapable of withstanding the influence of such enormous treasures as those he seized at Susa, amounting, it is said, to four hundred millions of dollars; the plunder of the Persian empire; the inconceivable luxury of Asiatic life; the uncontrolled power to which he attained. But he was not so imbecile as to believe himself the descendant of Jupiter Ammon; that was only an artifice he permitted for the sake of influencing those around him. We must not forget that he lived in an age when men looked for immaculate conceptions and celestial descents. These Asiatic ideas had made their way into Europe. The Athenians themselves were soon to be reconciled to the appointment of divine honors to such as Antigonus and Demetrius, adoring them as gods—savior gods—and instituting sacrifices and priests for their worship.

Great as were the political results of the Macedonian expedition, they were equaled by the intellectual. The times were marked by the ushering in of a new philosophy. Greece had gone through her age of Credulity, her age of Inquiry, her age of Faith; she had entered on her age of Reason, and, had freedom of action been permitted to her, she would have given a decisive tone to the forthcoming civilization of Europe. As will be seen in the following pages, that great destiny did not await her. From her eccentric position at Alexandria she could not civilize Europe. The Greek age of Reason ushered in. Its inability to accomplish the civilization of Europe. In her

old age, the power of Europe, concentrated in the Roman empire, overthrew her. There are very few histories of the past of more interest to modern times, and none, unfortunately, more misunderstood, than this Greek age of Reason manifested at Alexandria. It illustrates, in the most signal manner, that affairs control men more than men control affairs. The scientific associations of the Macedonian conqueror directly arose from the contemporaneous state of Greek philosophy in the act of reaching the close of its age of faith, and these influences ripened under the Macedonian captain who became King of Egypt. As it was, the learning of Alexandria, though diverted from its most appropriate and desirable direction by the operation of the Byzantine system, in the course of a few centuries acting forcibly upon it, was not without an influence on the future thought of Europe. Even at this day Europe will not bear to be fully told how great that influence has been.

The age of Reason, to which Aristotle is about to introduce us, stands in striking contrast with the preceding ages. It can not escape the reader that what was done by the men of science in Alexandria resembles what is doing in our own times; their day was the foreshadowing of ours. And yet a long and dreary period of almost twenty centuries parts us from them. Politically, Aristotle, through his friendship with Alexander and the perpetuation of the Macedonian influence in Ptolemy, was the connecting link between the Greek age of Faith and that of Reason, as he was also philosophically by the nature of his doctrines. He offers us an easy passage from the speculative methods of Plato to the scientific methods of Archimedes and Euclid. The copiousness of his doctrines, and the obscurity of many of them, might, perhaps, discourage a superficial student, unless he steadily bears in mind the singular authority they maintained for so many ages, and the brilliant results in all the exact parts of human knowledge to which they so quickly led. The history of Aristotle and his philosophy is therefore our necessary introduction to the grand, the immortal achievements of the Alexandrian school.

Aristotle was born at Stagira, in Thrace, B.C. 384. His father was an eminent author of those times on subjects of Natural History; by profession he was a physician. Dying while his son was yet quite young, he bequeathed to him not only very ample means, but also his own tastes. Aristotle soon found his way to Athens, and entered the school of Plato, with whom it is said he remained for nearly twenty years. During this period he spent most of his patrimony, and in the end was obliged to support himself by the trade of a druggist. At length differences arose between them, for, as we shall soon find, the great pupil was by no means a blind follower of the great master. In a fortunate moment, Philip, the King of Macedon, appointed him preceptor to his son Alexander, an incident of importance in the intel-

The writings of Aristotle are its prelude.

Biography of Aristotle.

lectual history of Europe. It was to the friendship arising through this relation that Aristotle owed that effectual assistance to which we have alluded from the conqueror during his Asiatic expedition for the composition of "the Natural History," and also gained that prestige which gave his name such singular authority for more than fifteen centuries. He eventually founded a school in the Lyceum at Athens, and, as it was his habit to deliver his lectures while walking, his disciples received the name of Peripatetics, or walking philosophers. These lectures were of two kinds, esoteric and exoteric, the former being delivered to the more advanced pupils only. He wrote a very large number of works, of which about one fourth remain.

The philosophical method of Aristotle is the inverse of that of Plato, whose starting-point was universals, the very existence of which was a matter of faith, and from which he descended to particulars or details. Aristotle, on the contrary, rose from particulars to universals, advancing to them by inductions; and his system, thus an inductive philosophy, was in reality the true beginning of science.

He founds the inductive philosophy.

Plato therefore trusts to the Imagination, Aristotle to Reason. The contrast between them is best seen by the attitude in which they stand as respects the Ideal theory. Plato regards universals, types, or exemplars as having an actual existence; Aristotle declares that they are mere abstractions of reasoning. For the fanciful reminiscences derived from former experience in another life by Plato, Aristotle substitutes the reminiscences of our actual experience in this. These ideas of experience are furnished by the memory, which enables us not only to recall individual facts and events witnessed by ourselves, but also to collate them with one another, thereby discovering their resemblances and their differences. Our induction becomes the more certain as our facts are more numerous, our experience larger. "Art commences when, from a great number of experiences, one general conception is formed which will embrace all similar cases." "If we properly observe celestial phenomena, we may demonstrate the laws which regulate them." With Plato, philosophy arises from faith in the past; with Aristotle, reason alone can constitute it from existing facts. Plato is analytic, Aristotle synthetic. The philosophy of Plato arises from the decomposition of a primitive idea into particulars, that of Aristotle from the union of particulars into a general conception. The former is essentially an idealist, the latter a materialist.

His method compared with that of Plato.

From this it will be seen that the method of Plato was capable of producing more splendid, though they were necessarily more unsubstantial results; that of Aristotle was more tardy in its operation, but much more solid. It implied endless labor in the collection of facts, the tedious resort to experiment and observation, the application of demonstration. In its very nature it was such that it was im-

The results of Platonism and Aristotelism.

possible for its author to carry by its aid the structure of science toward completion. The moment that Aristotle applies his own principles we find him compelled to depart from them through the want of a sufficient experience and sufficient precision in his facts. The philosophy of Plato is a gorgeous castle in the air, that of Aristotle is a solid structure, laboriously, and, with many failures, founded on the solid rock.

Under logic Aristotle treats of the methods of arriving at general propositions, and of reasoning from them. His logic is at once Aristotle's logic the art of thinking and the instrument of thought. The completeness of our knowledge depends on the extent and completeness of our experience. His manner of reasoning is by the syllogism, an argument consisting of three propositions, such that the concluding one follows of necessity from the two premises, and of which, indeed, the whole theory of demonstration is only an example. Regarding logic as the instrument of thought, he introduces into it, as a fundamental feature, the ten categories. These predicaments are the genera to which every thing may be reduced, and denote the most general of the attributes which may be assigned to a thing.

His metaphysics overrides all the branches of the physical sciences. It undertakes an examination of the postulates on which each one of and metaphysics. them is founded, determining their truth or fallacy. Considering that all science must find a support for its fundamental conditions in an extensive induction from facts, he puts at the foundation of his system the consideration of the individual; in relation to the world of sense, he regards four causes as necessary for the production of a fact—the material cause, the substantial cause, the efficient cause, the final cause.

But as soon as we come to the Physics of Aristotle we see at once his weakness. The knowledge of his age does not furnish him Temporary failure of his system. facts enough whereon to build, and the consequence is that he is forced into speculation. It will be sufficient for our purpose to allude to a few of his statements, either in this or in his metaphysical branch, to show how great is his uncertainty and confusion. Thus he asserts that matter contains a triple form—simple substance, higher substance, which is eternal, and absolute substance, or God himself; that the universe is immutable and eternal, and, though in relation with the vicissitudes of the world, it is unaffected thereby; that the The Peripatetic philosophy. primitive force which gives rise to all the motions and changes we see is Nature; it also gives rise to Rest; that the world is a living being, having a soul; that, since every thing is for some particular end, the soul of man is the end of his body; that Motion is the Substance, Motion, Space, Time. condition of all nature; that the world has a definite boundary and a limited magnitude; that Space is the immovable vessel in which whatever is may be moved; that Space, as a whole, is with-

out motion, though its parts may move; that it is not to be conceived of as without contents; that it is impossible for a vacuum to exist, and hence there is not beyond and surrounding the world a void which contains the world; that there could be no such thing as Time unless there was a soul, for time being the number of motion, number is impossible except there be one who numbers; that, perpetual motion in a finite right line being impossible, but in a curvilinear path possible, the world, which is limited and ever in motion, must be of a spherical The world. form; that the earth is its central part, the heavens the circumferential, hence the heaven is nearest to the prime cause of motion; that the orderly, continuous, and unceasing movement of the celestial bodies implies an unmoved mover, for the unchangeable alone can give birth to uniform motion; that unmoved existence is God; that the stars are passionless beings, having attained the end of existence, and worthy above other things of human adoration; that the fixed stars are in the outermost heaven, and the sun, moon, and planets beneath: the former receive their motion from the prime moving cause, but the planets are disturbed by the stars; that there are five elements—earth, air, fire, water, and ether; that the earth is in the centre of the universe, since earthy matter settles uniformly round a central point; that fire seeks the circumferential region, and intermediately water floats upon the earth, and air upon water; that the elements are transmutable into one another, and hence many intervening substances arise; that each sphere is in interconnection with the others; the earth is agitated and disturbed by the sea, the sea by the winds, which are movements of the air, the air by the sun, moon, and planets. Each inferior sphere is controlled by its outlying or superior one, and hence it follows that the earth, which is thus disturbed by the conspiring or conflicting action of all above it, is liable to the most irregularities; that, since animals are nourished by the earth, it needs must enter into their composition, but that water is required to hold the earthy parts together; that every element must be looked upon as living, since it is pervaded by the soul of the world; that there is an unbroken chain from the simple element through the plant and animal up to man, the different groups merging by insensible shades into one another: thus zoophytes partake partly Organic beings. of the vegetable and partly of the animal, and serve as an intermedium between them; that plants are inferior to animals in this, that they do not possess a single principle of life or soul, but many subordinate ones, as is shown by the circumstance that, when they are cut to pieces, each piece is capable of perfect or independent growth or life. Their inferiority is likewise betrayed by their belonging especially to the earth to which they are rooted, each root being a true mouth; and this again displays their lowly position, for the place of the mouth is ever an indication of the grade of a creature: thus in man, who is at the head of the

scale, it is in the upper part of the body; that in proportion to the heat of an animal is its grade higher: thus those that are aquatic are cold, and therefore of very little intelligence, and the same may be said of plants; but of man, whose warmth is very great, the soul is much more excellent; that the possession of locomotion by an organism always implies the possession of sensation; that the senses of taste and touch indicate the qualities of things in contact with the organs of the animal, but that those of smell, hearing, and sight extend the sphere of its existence, and indicate to it what is at a distance; that the place of reception of the various sensations is the soul, from which issue forth the motions; that the blood, as the general element of nutrition, is essential to the support of the body, though insensible itself: it is also essential to the activity of the soul; that the brain is not the recipient of sensations: that function belongs to the heart; all the animal activities are united in it; it contains the principle of life, being the principle of motion; it is the first part to be formed and the last to die; that the brain is a mere appendix to the heart, since it is formed after the heart; is the coldest of the organs, and is devoid of blood; that the soul is the reunion of all the functions of the body: it is an energy or active essence; being neither body nor magnitude, it can not have extension, for thought has no parts, nor can it be said to move in space; it is as a sailor, who is motionless in a ship which is moving; that, in the origin of the organism, the male furnishes the soul and the female the body; that the body being liable to decay, and of a transitory nature, it is necessary for its well-being that its disintegration and nutrition should balance one another; that sensation may be compared to the impression of a seal on wax, the wax receiving form only, but no substance or matter; that imagination arises from impressions thus made, but endure for a length of time, and that this is the origin of memory; that man alone possesses recollection, but animals share with him memory—memory being unintentional or spontaneous, but recollection implying voluntary exertion or a search; that recollection is necessary for acting with design. It is doubtful whether Aristotle believed in the immortality of the soul, no decisive passage to that effect occurring in such of his works as are extant.

Aristotle, with a correct and scientific method, tried to build up a vast system when he was not in possession of the necessary data. Though a very learned man, he had not sufficient knowledge; indeed there was not sufficient knowledge at that time in the world. For many of the assertions I have quoted in the preceding paragraph there was no kind of proof; many of them also, such as the settling of the heavy and the rise of the light, imply very poor cosmic ideas. It is not until he deals with branches, such as comparative anatomy and natural history, that he shows a personal and practical knowl-

Physiological
conclusions.

Causes of Aris-
totle's success
and failure.

edge, that he begins to write well. Of his physiological conclusions, some are singularly felicitous; his views of the connected chain of organic forms, from the lowest to the highest, are very grand. His metaphysical and physical speculations—for in reality they are nothing but speculations—are of no kind of value. His successful achievements, and also his failures, conspicuously prove the excellence of his system. He expounded the true principles of science, but failed to apply them merely for want of materials. His ambition could not brook restraint. He would rather attempt to construct the universe without the necessary means than not construct it at all.

Aristotle failed when he abandoned his own principles, and the magnitude of his failure proves how just his principles were; he succeeded when he adhered to them. If any thing were wanted to vindicate their correctness and illustrate them, it is supplied by the glorious achievements of the Alexandrian school, which acted in physical science as Aristotle had acted in natural history, laying a basis solidly in observation and experiment, and accomplishing a like durable and brilliant result.

From Aristotle it is necessary to turn to Zeno, for the Peripatetics and Stoics stand in parallel lines. The social conditions existing in Greece at the time of Epicurus may in some degree palliate his sentiments, but virtue and honor will make themselves felt at last. Stoicism soon appeared as the antagonist of Epicureanism, and Epicurus found in Zeno of Citium a rival. The passage from Epicurus to Zeno is the passage from sensual gratification to self-control.

The biography of Zeno may be dismissed in a few words. Born about B.C. 300, he spent the early part of his life in the vocation of his father, who was a merchant, but, by a fortunate shipwreck, happily losing his goods during a voyage he was making to Athens, he turned to philosophy for consolation. Though he had heretofore been somewhat acquainted with the doctrines of Socrates, he became a disciple of the Cynics, subsequently studying in the Megaric school, and then making himself acquainted with Platonism. After twenty years of preparation, he opened a school in the stoa or porch in Athens, from which his doctrine and disciples have received their name. He presided over his school for fifty-eight years, numbering many eminent men among his disciples. When nearly a hundred years old he chanced to fall and break his finger, and, receiving this as an admonition that his time was accomplished, he forthwith strangled himself. The Athenians erected to his memory a statue of brass. His doctrines long survived him, and, in times when there was no other consolation for man, offered a support in their hour of trial, and an unwavering guide in the vicissitudes of life, not only to many illustrious Greeks, but also to some of the great philosophers, statesmen, generals, and emperors of Rome.

Biography
of Zeno.

It was the intention of Zeno to substitute for the visionary speculations of Platonism a system directed to the daily practices of life, and hence dealing chiefly with the morals. To make men virtuous was his aim. But this is essentially connected with knowledge, for Zeno was persuaded that if we only know what is good we shall be certain to practice it. He therefore rejected Plato's fancies of Ideas and Reminiscences, leaning to the common-sense doctrines of Aristotle, to whom he approached in many details. With him Sense furnishes the data of knowledge, and Reason combines them; the soul being modified by external things, and modifying them in return, he believed that the mind is at first, as it were, a blank tablet, on which sensation writes marks, and that the distinctness of sensuous impressions is the criterion of their truth. The changes thus produced in the soul constitute ideas; but, with a prophetic inspiration, he complained that man will never know the true essence of things.

In his Physics Zeno adopted the doctrine of Strato, that the world is a living being. He believed that nothing incorporeal can produce an effect, and hence that the soul is corporeal. Matter and its properties he considered to be absolutely inseparable, a property being actually a body. In the world there are two things, matter and God, who is the Reason of the world. Essentially, however, God and matter are the same thing, which assumes the aspect of matter from the passive point of view, and God from the active; he is, moreover, the prime moving force, Destiny, Necessity, a life-giving Soul, evolving things as the vital force evolves a plant out of a seed; the visible world is thus to be regarded as the material manifestation of God. The transitory objects which it on all sides presents will be reabsorbed after a season of time, and reunited in him. The Stoics pretended to indicate, even in a more definite manner, the process by which the world has arisen, and also its future destiny; for, regarding the Supreme as a vital heat, they supposed that a portion of that fire, declining in energy, became transmuted into matter, and hence the origin of the world; but that that fire, hereafter resuming its activity, would cause a universal conflagration, the end of things. During the present state every thing is in a condition of uncertain mutation, decays being followed by reproductions, and reproductions by decays; and, as a cataract shows from year to year an invariable form, though the water composing it is perpetually changing, so the objects around us are nothing more than a flux of matter offering a permanent form. Thus the visible world is only a moment in the life of God, and after it has vanished away like a scroll that is burned, a new period shall be ushered in, and a new heaven and a new earth, exactly like the ancient ones, shall arise. Since nothing can exist without its contrary, no injustice unless there was justice, no cowardice unless there was courage, no lie unless there was truth, no

shadow unless there was light, so the existence of good necessitates that of evil. The Stoics believed that the development of the world is under the dominion of paramount law, supreme law, Destiny, to which God himself is subject, and that hence he can only develop the world in a predestined way, as the vital warmth evolves a seed into the predestined form of a plant.

The Stoics held it indecorous to offend needlessly the religious ideas of the times, and, indeed, they admitted that there might be created gods like those of Plato; but they disapproved of the adoration of images and the use of temples, making amends for their offenses in these particulars by offering a semi-philosophical interpretation of the legends, and demonstrating that the existence, and even phenomenal display of the gods was in accordance with their principles. Perhaps to this exoteric philosophy we must ascribe the manner in which they expressed themselves as to final causes—expressions sometimes of amusing quaintness—thus, that the peacock was formed for the sake of his tail, and that a soul was given to the hog instead of salt, to prevent his body from rotting; that the final cause of plants is to be food for brutes, of brutes to be food for men, though they discreetly checked their irony in its ascending career, and abstained from saying that men are food for the gods, and the gods for all.

The Stoics concluded that the soul is mere warm breath, and that it and the body mutually interpenetrate one another. They thought that it might subsist after death until the general conflagration, particularly if its energy was great, as in the strong spirits of the virtuous and wise. Its unity of action implies that it has a principle of identity, the I, of which the physiological seat is the heart. Every appetite, lust, or desire is an imperfect knowledge. Our nature and properties are forced upon us by Fate, but it is our duty to despise all our propensities and passions, and to live so that we may be free, intelligent, and virtuous.

This sentiment leads us to the great maxim of Stoical Ethics, "Live according to Reason;" or, since the world is composed of matter and God, who is the Reason of the world, "Live in harmony with Nature." As Reason is supreme in Nature, it ought to be so in man. Our existence should be intellectual, and all bodily pains and pleasures should be despised. A harmony between the human will and universal Reason constitutes virtue. The free-will of the sage should guide his actions in the same irresistible manner in which universal Reason controls nature. Hence the necessity of a cultivation of physics, without which we can not distinguish good from evil. The sage is directed to remember that Nature, in her operations, aims at the universal, and never spares individuals, but uses them as means for accomplishing her ends. It is for him, therefore, to submit to his destiny,

Exoteric philosophy of the Stoics.

Their opinions of the nature of the soul.

Their ethical rules of wisdom.

endeavoring continually to establish the supremacy of Reason, and cultivating, as the things necessary to virtue, knowledge, temperance, fortitude, justice. He is at liberty to put patriotism at the value it is worth when he remembers that he is a citizen of the world; he must train himself to receive in tranquillity the shocks of Destiny, and to be above all passion and all pain. He must never relent and never forgive. He must remember that there are only two classes of men, the wise and the fools, as "sticks can only either be straight or crooked, and very few sticks in this world are absolutely straight."

From the account I have given of Aristotle's philosophy, it may be seen that he occupied a middle ground between the speculation of the old philosophy and the strict science of the Alexandrian school. He is the true connecting link, in the history of European intellectual progress, between philosophy and science. Under his teaching, and the material tendencies of the Macedonian campaigns, there arose a class of men in Egypt who gave to the practical a development it had never before attained; for that country, upon the breaking up of Alexander's dominion, B.C. 323, falling into the possession of Ptolemy, that general found himself at once the depositary of spiritual and temporal power. Of the former, it is to be remembered that, though the conquest by Cambyses had given it a severe shock, it still not only survived, but displayed no inconsiderable tokens of strength. Indeed, it is well known that the surrender of Egypt to Alexander was greatly accelerated by hatred to the Persians, the Egyptians welcoming the Macedonians as their deliverers. In this movement we perceive at once the authority of the old priesthood. It is hard to tear up by the roots an ancient religion, the ramifications of which have solidly insinuated themselves among a populace. That of Egypt had already been the growth of more than three thousand years. The question for the intrusive Greek sovereigns to solve was how to co-ordinate this hoary system with the philosophical skepticism that had issued as the result of Greek thought. With singular sagacity, they saw that this might be accomplished by availing themselves of Orientalism, the common point of contact of the two systems; and that, by its formal introduction and development, it would be possible not only to enable the philosophical king, to whom all the pagan gods were alike equally fictitious and equally useful, to manifest respect even to the ultra-heathenish practices of the Egyptian populace, but, what was of far more moment, to establish an apparent concord between the old sacerdotal Egyptian party—strong in its unparalleled antiquity, strong in its reminiscences, strong in its recent persecutions, strong in its Phœnician and Jewish sympathies, regarded by all men with a superstitious or reverent respect—and the free-thinking and versatile Greeks.

Rise of Greek
science.

Political position
of the Ptolemies.

They co-ordinate
Egyptian idolatry
and Greek skepticism.

The occasion was like some other instances in history, some even in our own times; a small but energetic body of invaders was holding in subjection an ancient and populous country.

To give practical force to this project, a grand state institution was founded at Alexandria. It became celebrated as the Museum. The Museum of Alexandria. To it, as to a centre, philosophers from all parts of the world converged. It is said that at one time not less than fourteen thousand students were assembled there. Alexandria, in confirmation of the prophetic foresight of the great soldier who founded it, quickly became an immense metropolis, abounding in mercantile and manufacturing activity. As is ever the case with such cities, its higher classes were prodigal and dissipated, its lower only to be held in restraint by armed force. Its public amusements were such as might be expected—theatrical shows, music, horse-racing. In the solitude of such a crowd, or in the noise of such dissipation, any one could find a retreat—atheists who had been banished from Athens, devotees from the Ganges, monotheistic Jews, blasphemers from Asia Minor. Indeed, it has been said that in this heterogeneous community blasphemy was hardly looked upon as a crime; at the worst, it was no more than an unfortunate, and, it might be, an innocent mistake. But, since uneducated men need some solid support on which their thoughts may rest, mere abstract doctrines not meeting their wants, it became necessary to provide some corporeal representation for the eclectic philosophical Pantheism, and hence the Ptolemies were obliged to restore, or, as some say, import the Establishment of the worship of Serapis. worship of the god Serapis. Those who affirm that he was imported say that he was brought from Sinope; modern Egyptian scholars, however, give a different account. As setting forth the Pantheistic doctrine of which he was the emblem, his image, subsequently to attain world-wide fame, was made of all kinds of metals and stones. "All is God." But still the people, with that instinct which other nations and ages have displayed, hankered after a female divinity, and this led to the partial restoration of the worship of Isis. It is interesting to remark how the humble classes never shake off the reminiscences of early life, leaning rather to the maternal than to the paternal attachment. Perhaps it is for that reason that they expect a more favorable attention to their supplications from a female divinity than a god. Accordingly, the devotees of Isis soon outnumbered those of Serapis, though a magnificent temple had been built for him at Rhacotis, in the quarter adjoining the Museum, and his worship was celebrated with more than imperial splendor. In subsequent ages the worship of Serapis diffused itself throughout the Roman empire, though the authorities—consuls, senate, emperors—knowing well the idea it foreshadowed, and the doctrine it was meant to imply, used their utmost power to put it down.

The Alexandrian Museum soon assumed the character of a University. In it those great libraries were collected, the pride and boast of antiquity. Demetrius Phalareus was instructed to collect all the writings in the world. So powerfully were the exertions of himself and his successors enforced by the government that two immense libraries were procured. They contained 700,000 volumes. In this literary and scientific retreat, supported in ease and even in luxury—luxury, for allusions to the sumptuous dinners have descended to our times—the philosophers spent their day in mental culture by study, or mutual improvement by debates. The king himself conferred appointments to these positions; in later times, the Roman emperors succeeded to the patronage, the government thereby binding in golden chains intellect that might otherwise have proved troublesome. At first, in honor of the ancient religion, the presidency of the establishment was committed to an Egyptian priest; but in the course of time that policy was abandoned. It must not, however, be imagined that the duties of the inmates were limited to reading and rhetorical display; a far more practical character was imparted to them. A botanical garden, in connection with the Museum, offered an opportunity to those who were interested in the study of the nature of plants; a zoological menagerie afforded like facilities to those interested in animals. Even these costly establishments were made to minister to the luxury of the times: in the zoological garden pheasants were raised for the royal table. Besides these elegant and fashionable appointments, another, of a more forbidding and perhaps repulsive kind, was added; an establishment which, in the light of our times, is sufficient to confer immortal glory on those illustrious and high-minded kings, and to put to shame the ignorance and superstition of many modern nations: it was an anatomical school, suitably provided with means for the dissection of the human body, this anatomical school being the basis of a medical college for the education of physicians. For the astronomers Ptolemy Euergetes placed in the Square Porch an equinoctial and a solstitial armil, the graduated limbs of these instruments being divided into degrees and sixths. Besides these, there were in the observatory stone quadrants, the precursors of our mural quadrants. On the floor a meridian line was drawn for the adjustment of the instruments. There were also astrolabes and dioptras. Thus, side by side, almost in the king's palace, were noble provisions for the cultivation of exact science and for the pursuit of light literature. Under the same roof were gathered together geometers, astronomers, chemists, mechanicians, engineers. There were also poets, who ministered to the literary wants of a dissipated city—authors who could write verse, not only in correct metre, but in all kinds of fantastic forms—trees, hearts, and eggs. Here met together the literary dandy and the grim theologian. At

The Alexandrian libraries.

Botanical gardens; menageries; dissecting-houses; observatories.

Life in the Museum.

their repasts occasionally the king himself would preside, enlivening the moment with the condescensions of royal relaxation. Thus of Philadelphus it is stated that he caused to be presented to the Stoic Sphaerus a dish of fruit made of wax, so beautifully colored as to be undistinguishable from the natural, and, on the mortified philosopher detecting too late the fraud that had been practiced upon him, inquired what he now thought of the maxim of his sect that "the sage is never deceived by appearances." Of the same sovereign it is related that he received the translators of the Septuagint Bible with the highest honors, entertaining them at his table. Under the atmosphere of the place their usual religious ceremonial was laid aside, save that the king courteously requested one of the aged priests to offer an extempore prayer. It is naïvely related that the Alexandrians present, ever quick to discern rhetorical merit, testified their estimation of the performance with loud applause. But not alone did literature and the exact sciences thus find protection. As if no subjects to which the human mind has devoted itself can be unworthy of investigation, in the Museum were cultivated the more doubtful arts, magic and astrology. Philadelphus, who, toward the close of his life, was haunted with an intolerable dread of death, devoted himself with intense assiduity to the discovery of the elixir of life and to alchemy. Such a comprehensive organization for the development of human knowledge never existed in the world before, and, considering the circumstances, never has since. To be connected with it was a passport to the highest Alexandrian society and to court favor.

To the Museum, and, it has been asserted, particularly to Ptolemy Philadelphus, the Christian world is thus under obligation for that ancient version of the Hebrew Scriptures—the Septuagint. The Septuagint translators. Many idle stories have been related respecting the circumstances under which that version was made, as that the seventy-two translators by whom it was executed were confined each in a separate cell, and, when their work was finished, the seventy-two copies were found identically the same, word for word. From this it was supposed that the inspiration of this translation was established. If any proof of that kind were needed, it would be much better found in the fact that whenever the occasion arises in the New Testament of quoting from the Old, it is usually done in the words of the Septuagint. The story of the cells underwent successive improvements among the early fathers, but is now rejected as a fiction; and, indeed, it seems probable that the translation was not made under the splendid circumstances commonly related, but merely by the Alexandrian Jews for their own convenience. As the Septuagint grew into credit among the Christians, it lost favor among the Jews, who made repeated attempts in after years to supplant it by new versions, such as those of Aquila, of Theodotion, of

Symmachus, and others. From the first the Syrian Jews had looked on it with disapproval; they even held the time of its translation as a day of mourning, and with a malicious grief pointed out its errors, as, for instance, they affirmed that it made Methusaleh live until after the Deluge. Ptolemy treated all those who were concerned in providing books for the library with consideration, remunerating his translators and transcribers in a princely manner.

But the modern world is not alone indebted to these Egyptian kings in the particular here referred to. The Museum made an impression upon the intellectual career of Europe so powerful and enduring that we still enjoy its results. That impression was twofold, theological and physical. The dialectical spirit and literary culture diffused among the Alexandrians prepared that people, beyond all others, for the reception of Christianity. For thirty centuries the Egyptians had been familiar with the conception of a triune God. There was hardly a city of any note without its particular triad. Here it was Amun, Maut, and Khonso; there Osiris, Isis, and Horus. The apostolic missionaries, when they reached Alexandria, found a people ready to appreciate the profoundest mysteries. But with these advantages came great evils. The Trinitarian disputes, which subsequently deluged the world with blood, had their starting-point and focus in Alexandria. In that city Arius and Athanasius dwelt. There originated that desperate conflict which compelled Constantine the Great to summon the Council of Nicea, to settle, by a formulary or creed, the essentials of our faith.

But it was not alone as regards theology that Alexandria exerted a power on subsequent ages, her influence was as strongly marked in the impression it gave to science. Astronomical observatories, chemical laboratories, libraries, dissecting-houses, were not in vain. There went forth from them a spirit powerful enough to tincture all future times. Nothing like the Alexandrian Museum was ever called into existence in Greece or Rome, even in their palmiest days. It is the unique and noble memorial of the dynasty of the Ptolemies, who have thereby laid the whole human race under obligations, and vindicated their title to be regarded as a most illustrious line of kings. The Museum was, in truth, an attempt at the organization of human knowledge, both for its development and its diffusion. It was conceived and executed in a practical manner worthy of Alexander. And though, in the night through which Europe has been passing—a night full of dreams and delusions—men have not entertained a right estimate of the spirit in which that great institution was founded, and the work it accomplished, its glories being eclipsed by darker and more unworthy things, the time is approaching when its action on the course of human events will be better understood, and its influences on European civilization more clearly discerned.

Lasting influence
 of the Museum,
 theological and
 scientific.

Thus, then, about the beginning of the third century before Christ, in consequence of the Macedonian campaign, which had brought the Greeks in contact with the ancient civilization of Asia, a great degree of intellectual activity was manifested in Egypt. On the site of the village of Rhacotis, once held as an Egyptian post to prevent the ingress of strangers, the Macedonians erected that city which was to be the entrepôt of the commerce of the East and West, and to transmit an illustrious name to the latest generations. Her long career of commercial prosperity, her commanding position as respects the material interests of the world, justified the statesmanship of her founder, and the intellectual glory which has gathered round her has given an enduring lustre to his name.

The Museum was the issue of the Macedonian campaign.

There can be no doubt that the philosophical activity here alluded to was the direct issue of the political and military event to which we have referred it. The tastes and genius of Alexander were manifested by his relations to Aristotle, whose studies in natural history he promoted by the collection of a menagerie; and in astronomy, by transmitting to him, through Callisthenes, the records of Babylonian observations extending over 1903 years. His biography, as we have seen, shows a personal interest in the cultivation of such studies. In this particular other great soldiers have resembled him; and perhaps it may be inferred that the practical habit of thought and accommodation of theory to the actual purposes of life pre-eminently required by their profession, leads them spontaneously to decline speculative uncertainties, and to be satisfied only with things that are real and exact.

Under the inspiration of the system of Alexander, and guided by the suggestions of certain great men who had caught the spirit of the times, the Egyptian kings thus created, under their own immediate auspices, the Museum. State policy, operating in the manner I have previously described, furnished them with an additional theological reason for founding this establishment. In the Macedonian campaign a vast amount of engineering and mathematical talent had been necessarily stimulated into existence, for great armies can not be handled, great marches can not be made, nor great battles fought without that result. When the period of energetic action was over, and to the military operations succeeded comparative repose and temporary moments of peace, the talent thus called forth found occupation in the way most congenial to it by cultivating mathematical and physical studies. In Alexandria, itself a monument of engineering and architectural skill, soon were to be found men whose names were destined for futurity—Apollonius, Eratosthenes, Manetho. Of these, one may be selected for the remark that, while speculative philosophers were occupying themselves with discussions respecting the criterion of truth, and, upon the whole, coming to the conclusion that no such thing existed,

The great men it produced.

and that, if the truth was actually in the possession of man, he had no means of knowing it, Euclid of Alexandria was writing an immortal work, destined to challenge contradiction from the whole human race, and to make good its title as the representative of absolute and undeniable truth—truth not to be gainsaid in any nation or at any time. We still use the geometry of Euclid in our schools.

It is said that Euclid opened a geometrical school in Alexandria about B.C. 300. He occupied himself not only with mathematical, but also physical investigation. Besides many works of the former class supposed to have been written by him, as on Fallacies, Conic Sections, Divisions, Porisms, Data, there are imputed to him treatises on Harmonics, Optics, and Catoptrics, the two latter subjects being discussed, agreeably to the views of those times, on the hypothesis of rays issuing from the eye to the object, instead of passing, as we consider them to do, from the object to the eye. It is, however, on the excellencies of his Elements of Geometry that the durable reputation of Euclid depends; and though the hypercriticism of modern mathematicians has perhaps successfully maintained such objections against them as that they might have been more precise in their axioms, that they sometimes assume what might be proved, that they are occasionally redundant, and their arrangement sometimes imperfect, yet they still maintain their ground as a model of extreme accuracy, of perspicuity, and as a standard of exact demonstration. They were employed universally by the Greeks, and, in subsequent ages, were translated and preserved by the Arabs.

Great as is the fame of Euclid, it is eclipsed by that of Archimedes the Syracusan, born B.C. 287, whose connection with Egyptian science is not alone testified by tradition, but also by such facts as his acknowledged friendship with Conon of Alexandria, and his invention of the screw still bearing his name, intended for raising the waters of the Nile. Among his mathematical works, the most interesting, perhaps, in his own estimation, as we may judge from the incident that he directed the diagram thereof to be engraved on his tombstone, was his demonstration that the solid content of a sphere is two thirds that of its circumscribing cylinder. It was by this mark that Cicero, when Quæstor of Sicily, discovered the tomb of Archimedes grown over with weeds. This theorem was, however, only one of a large number of a like kind, which he treated of in his two books on the sphere and cylinder in an equally masterly manner, and with equal success. His position as a geometer is perhaps better understood from the assertion made respecting him by a modern mathematician, that he came as near to the discovery of the Differential Calculus as can be done without the aid of algebraic transformations. the special problems he treated of may be mentio he circle, his determination of the

ratio of the circumference being between 3.1428 and 3.1408, the true value, as is now known, being 3.1416 nearly. He also wrote on Conoids and Spheroids, and upon that spiral still passing under his name, the genesis of which had been suggested to him by Conon. In his work entitled *Psammites* he alludes to the astronomical system subsequently established by Copernicus, whose name has been given to it. He also mentions the attempts which had been made to measure the size of the earth; the chief object of the work being, however, to prove not only that the sands upon the sea-shore can be numbered, but even those required to fill the entire space within the sphere of the fixed stars; the result being, according to our system of arithmetic, a less number than is expressed by unity followed by 63 ciphers. Such a book is the sport of a geometrical giant wantonly amusing himself with his strength. Among his mathematical investigations must not be omitted the quadrature of the parabola. His fame depends, however, not so much on his mathematical triumphs as upon his brilliant discoveries in physics and his mechanical inventions. How he laid the foundation of Hydrostatics is familiar to every one, through the story of Hiero's crown. A certain artisan having adulterated the gold given him by King Hiero to make a crown, Archimedes discovered that the falsification might be detected while he was accidentally stepping into a bath, and thereby invented the method for the determination of specific gravity. From these investigations he was naturally led to the consideration of the equilibrium of floating bodies; but his grand achievement in the mechanical direction was his discovery of the true theory of the lever: his surprising merit in these respects is demonstrated by the fact that no advance was made in theoretical mechanics in the eighteen centuries intervening between him and Leonardo da Vinci. Of minor matters not less than forty mechanical inventions have been attributed to him. Among these are the endless screw, the screw pump, a hydraulic organ, and burning mirrors. His genius is well indicated by the saying popularly attributed to him, "Give me whereon to stand, and I will move the earth," and by the anecdotes told of his exertions against Marcellus during the siege of Syracuse: his invention of catapults and other engines for throwing projectiles, as darts and heavy stones; claws which, reaching over the walls, lifted up into the air ships and their crews, and then suddenly dropped them into the sea; burning mirrors, by which, at a great distance, the Roman fleet was set on fire. It is related that Marcellus, honoring his intellect, gave the strictest orders that no harm should be done to him at the taking of the town, and that he was killed, unfortunately, by an ignorant soldier—unfortunately, for Europe was not able to produce his equal for nearly two thousand years.

Eratosthenes was contemporary with Archimedes. He was born at Cyrene B.C. 276. The care of the library appears to have been com-

The writings and works of Eratosthenes. mitted to him by Euergetes; but his attention was more specially directed to mathematical, astronomical, geographical, and historical pursuits. The work entitled *Catasterisms*, doubtfully imputed to him, is a catalogue of 475 of the principal stars; but it was probably intended for nothing more than a manual. He also is said to have written a poem upon terrestrial zones. Among his important geographical labors may be mentioned his determination of the interval between the tropics. He found it to be eleven eighty-thirds of the circumference. He also attempted the measurement of the size of the earth by ascertaining the distance between Alexandria and Syene, the difference of latitude between which he had found to be one fiftieth of the earth's circumference. It was his object to free geography from the legends with which the superstition of ages had adorned and oppressed it. In effecting this, he well deserves the tribute paid to him by Humboldt, the modern who of all others could best appreciate his labors. He considered the articulation and expansion of continents; the position of mountain chains; the action of clouds; the geological submersion of lands; the elevation of ancient sea-beds; the opening of the Dardanelles and of the Straits of Gibraltar; the relations of the Euxine Sea; the problem of the equal level of the circumfluous ocean; and the necessary existence of a mountain chain running through Asia in the diaphragm of Dicæarchus. What an advance is all this beyond the meditations of Thales! Herein we see the practical tendencies of the Macedonian wars. In his astronomical observations he had the advantage of using the armils and other instruments in the Observatory. He ascertained that the direction of terrestrial gravity is not constant, but that the verticals diverge. He composed a complete systemic description of the earth in three books—physical, mathematical, historical—accompanied by a map of all the parts then known. Of his skill as a geometer, his solution of the problem of two mean proportionals, still extant, offers ample evidence; and it is only of late years that the fragments remaining of his *Chronicles of the Theban Kings* are properly appreciated. He hoped to free history as well as geography from the myths that deform it, a task that the prejudices and interests of man will never permit to be accomplished. Some amusing anecdotes of his opinions in these respects have descended to us. He ventured to doubt the historical truth of the Homeric legends. "I will believe in it when I have been shown the currier who made the wind-bags which Ulysses on his homeward voyage received from Æolus." It is said that, having attained the age of eighty years, he became weary of life, and put an end to himself by voluntary starvation.

I shall here pause a few remarks suggested by the chronological works of Eratosthenes. Our current ring of erroneous theological consid-

erations, the nature of which required not only a short historical term for the various nations of antiquity, but even for the existence of man upon the globe. This necessity appears to have been chiefly experienced in the attempt to exalt certain facts in the history of the Hebrews from their subordinate position in human affairs, and, indeed, to give the whole of that history an exaggerated value. This was done in a double way: by elevating Hebrew history from its true grade, and depreciating or falsifying that of other nations. Among those who have been guilty of this literary offense, the name of the celebrated Eusebius, the Bishop of Cæsarea in the time of Constantine, should be designated, since in his chronography and synchronal tables he purposely "perverted chronology for the sake of making synchronisms" (Bunsen). It is true, as Niebuhr asserts, "He is a very dishonest writer." To a great extent, the superseding of the Egyptian annals was brought about by his influence. It was forgotten, however, that of all things chronology is the least suited to be an object of inspiration; and that, though men may be wholly indifferent to truth for its own sake, and consider it not improper to wrest it unscrupulously to what they may suppose a just purpose, yet that it will vindicate itself at last. It is impossible to succeed completely in perverting the history of a nation which has left numerous enduring records. Egypt offers to us testimonials reaching over five thousand years. As Bunsen well remarks, from the known portion of the curve of history we may determine the whole. The Egyptians, old as they are, belong to the middle ages of mankind, for there is a period antecedent to monumental history, or, indeed, to history of any kind, during which language and mythology are formed, for these must exist prior to all political institutions, all art, all science. Even at the first moment that we gain a glimpse of the state of Egypt she had attained a high intellectual condition, as is proved by the fact that her system of hieroglyphics was perfected before the fourth dynasty. It continued unchanged until the time of Psammetichus. A stationary condition of language and writing for thousands of years necessarily implies a long and very remote period of active improvement and advance. It was doubtless such a general consideration, rather than a positive knowledge of the fact, which led the Greeks to assert that the introduction of geometry into Egypt must be attributed to kings before the times of Menes. Not alone do her artificial monuments attest for that country an extreme antiquity; she is herself her own witness; for, though the Nile raises its bed only four feet in a thousand years, all the alluvial portion of Egypt has been deposited from the waters of that river. A natural register thus re-enforces the written records, and both together compose a body of evidence not to be gainsaid. Thus the depth of muddy silt accumulated round the pedestals of monuments is an irreproachable index of their age. In the eminent position he occupied, Eusebius might

succeed in perverting the received book-chronology, but he had no power to make the endless trade-wind that sweeps over the tropical Pacific blow a day more or a day less; none to change the weight of water precipitated from it by the African mountains; none to arrest the annual mass of mud brought down by the river. It is by collating such different orders of evidence together—the natural and the monumental, the latter gaining strength every year from the cultivation of hieroglyphic studies—that we begin to discern the true Egyptian chronology, and to put confidence in the fragments that remain of Eratosthenes and Manetho.

At the time of which we are speaking—the time of Eratosthenes—general ideas had been attained to respecting the doctrine of the sphere, its poles, axis, the equator, arctic and antarctic circles, equinoctial points, solstices, colures, horizon, etc. No one competent to form an opinion any longer entertained a doubt respecting the globular form of the earth. The arguments adduced in support of that position being such as are still popularly resorted to—the different positions of the horizon at different places, the changes in elevation of the pole, the phenomena of eclipses, and the gradual disappearance of ships as they sail from us. As to eclipses, once looked upon with superstitious awe, their true causes had not only been assigned, but their periodicities so well ascertained that predictions of their occurrence could be made. The Babylonians had thus long known that after a cycle of 223 lunations the eclipses of the moon return. The mechanism of the phases of that satellite was clearly understood. Indeed, Aristarchus of Samos attempted to ascertain the distance of the sun from the earth on the principle of observing the moon when she is dichotomized, a method quite significant of the knowledge of the time, though in practice unreliable; Aristarchus thus finding that the sun's distance is 18 times that of the moon, whereas it is in reality 400. In like manner, in a general way, pretty clear notions were entertained of the climate distribution of heat upon the earth, exaggerated, however, in this respect, that the torrid zone was believed to be too hot for human life, and the frigid too cold. Observations, as good as could be made by simple instruments, had not only demonstrated in a general manner the progressions, retrogradations, and stations of the planets, but attempts had been made to account for, or rather to represent them, by the aid of epicycles.

It was thus in Alexandria, under the Ptolemies, that modern astronomy arose. Of this line of kings, the founder, Ptolemy Soter, was not only a patron of science, but likewise an author. He composed a history of the campaigns of Alexander. Under him the collection of the library was commenced, probably soon after the defeat of Antigonus, B.C. 301. The Museum is due

Astronomy of
Eratosthenes.

Attempts of Ar-
istarchus to find
the distance of
the sun.

Biography of
the Ptolemies.

to his son Ptolemy Philadelphus, who not only patronized learning in his own dominions, but likewise endeavored to extend the boundaries of human knowledge in other quarters. Thus he sent an expedition under his admiral Timosthenes as far as Madagascar. Of the succeeding Ptolemies, Euergetes and Philopator were both very able men, though the latter was a bad one; he murdered his father, and perpetrated many horrors in Alexandria. Epiphanes, succeeding his father when only five years old, was placed by his guardians under the protection of Rome, thus furnishing to the ambitious republic a pretense for interfering in the affairs of Egypt. The same policy was continued during the reign of his son Philometor, who, upon the whole, was an able and good king. Even Physcon, who succeeded in B.C. 146, and who is described as sensual, corpulent, and cruel—cruel, for he cut off the head, hands, and feet of his son, and sent them to Cleopatra his wife—could not resist the inspirations to which the policy of his ancestors, continued for nearly two centuries, had given birth, but was an effective promoter of literature and the arts, and himself the author of an historical work. A like inclination was displayed by his successors, Lathyrus and Auletes, the name of the latter indicating his proficiency in music. The surnames under which all these Ptolemies pass were nicknames, or titles of derision imposed upon them by their giddy and satirical Alexandrian subjects. The political state of Alexandria was significantly said to be a tyranny tempered by ridicule. The dynasty ended in the person of the celebrated Cleopatra, who, after the battle of Actium, caused herself, as is related in the legends, to be bitten by an asp. She took poison that she might not fall captive to Octavianus, and be led in his triumph through the streets of Rome.

If we possessed a complete and unbiased history of these Greek kings, it would doubtless uphold their title to be regarded as the most illustrious of all ancient sovereigns. Even after their political power had passed into the hands of the Romans—a nation who had no regard to truth and to right—and philosophy, in its old age, had become extinguished or eclipsed by the faith of the later Cæsars, enforced by an unscrupulous use of their power, so strong was the vitality of the intellectual germ they had fostered, that, though compelled to lie dormant for centuries, it shot up vigorously on the first occasion that favoring circumstances occurred.

This Egyptian dynasty extended its protection and patronage to literature as well as to science. Thus Philadelphus did not consider it beneath him to count among his personal friends the poet Callimachus, who had written a treatise on birds, and honorably maintained himself by keeping a school in Alexandria. The court of that sovereign was, moreover, adorned by a constellation of seven poets, to which the gay Alexandrians gave the nickname of the Pleia-

They patronize
literature as
well as science.

des. They are said to have been Lycophron, Theocritus, Callimachus, Aratus, Apollonius Rhodius, Nicander, and Homer the son of Macro. Among them may be distinguished Lycophron, whose work, entitled *Cassandra*, still remains; and Theocritus, whose exquisite bucolics prove how sweet a poet he was.

To return to the scientific movement. The school of Euclid was worthily represented in the time of Euergetes by Apollonius Pergæus, forty years subsequently to Archimedes. He excelled both in the mathematical and physical department. His chief work was a treatise on Conic Sections. It is said that he was the first to introduce the words ellipse and hyperbola. So late as the eleventh century his complete works were extant in Arabic. Modern geometers describe him as handling his subjects with less power than his great predecessor Archimedes, but nevertheless displaying extreme precision and beauty in his methods. His fifth book, on *Maxima and Minima*, is to be regarded as one of the highest efforts of Greek geometry. As an example of his physical inquiries may be mentioned his invention of a clock.

Fifty years after Apollonius, B.C. 160-125, we meet with the great astronomer Hipparchus. He does not appear to have made observations himself in Alexandria, but he uses those of Aristyllus and Timochares of that place. Indeed, his great discovery of the precession of the equinoxes was essentially founded on the discussion of the Alexandrian observations on Spica Virginis made by Timochares. In pure mathematics

he gave methods for solving all triangles, plane and spherical; he also constructed a table of chords. In astronomy, besides his capital discovery of the precession of the equinoxes just mentioned, he also determined the first inequality of the moon, the equation of the centre, and all but anticipated Ptolemy in the discovery of the evection. To him also must be attributed the establishment of the theory of epicycles and eccentrics, a geometrical conception for the purpose of resolving the apparent motions of the heavenly bodies, on the principle of circular movement. In the case of the sun and moon, Hip-

parchus succeeded in the application of that theory, and indicated that it might be adapted to the planets. Though never intended as a representation of the actual motions of the heavenly bodies, it maintained its ground until the era of Kepler and Newton, when the heliocentric doctrine, and that of elliptic motions, were incontestably established. Even Newton himself, in the 35th proposition of the third book of the *Principia*, availed himself of its aid. Hipparchus also undertook to make a register of the stars by the method of alineations—that is, by indicating those which were in the same apparent straight line. The number of stars catalogued by him was 1080. If he thus depicted the aspect of the sky for his times, he also endeavored to do

the same for the surface of the earth by marking the position of towns and other places by lines of latitude and longitude.

Subsequently to Hipparchus, we find the astronomers Geminus and Cleomedes; their fame, however, is totally eclipsed by that of Ptolemy, A.D. 138, the author of the great work "The Syntax," or The writings of Ptolemy. the mathematical construction of the heavens—a work fully deserving the epithet which has been bestowed upon it, "a noble exposition of the mathematical theory of epicycles and eccentrics." It was translated by the Arabians after the Mohammedan conquest of Egypt; and, under the title of *Almagest*, was received by them as the highest authority on the mechanism and phenomena of the universe. It maintained its ground in Europe in the same eminent position for nearly fifteen hundred years, justifying the encomium of Synesius on the institution which gave it birth, "the divine school of Alexandria." The *Almagest* commences with the doctrine that the earth is globular and fixed in space; it describes the construction of a table of chords and instruments for observing the solstices, and deduces the obliquity of the ecliptic. It finds terrestrial latitudes by the gnomon; describes climates; shows how ordinary may be converted into sidereal time; gives reasons for preferring the tropical to the sidereal year; furnishes the solar theory on the principle of the sun's orbit being a simple eccentric; explains the equation of time; advances to the discussion of the motions of the moon; treats of the first inequality, of her eclipses, and the motion of the node. It then gives Ptolemy's own great discovery—that which makes his name immortal—the discovery of the moon's evection or second inequality, reducing it to the epicyclic theory. It attempts the determination of the distances of the sun and moon from the earth, with, however, only partial success, since it makes the sun's distance but one twentieth of the real amount. It considers the precession of the equinoxes, the discovery of Hipparchus, the full period for which is twenty-five thousand years. It gives a catalogue of 1022 stars; treats of the nature of the Milky Way; and discusses, in the most masterly manner, the motions of the planets. This point constitutes Ptolemy's second claim to scientific fame. His determination of the planetary orbits was accomplished by comparing his own observations with those of former astronomers, as those of Timochares on Venus. His great work: the mechanical construction of the heavens.

To Ptolemy we are also indebted for a work on Geography, used in European schools so late as the fifteenth century. The known His geography. world to him was from the Canary Islands eastward to China, and from the equator northward to Caledonia. His maps, however, are very erroneous; for, in the attempt to make them correspond to the spherical figure of the earth, the longitudes are too much to the east; the Mediterranean Sea is twenty degrees too long. Ptolemy's determ-

inations are, therefore, inferior in accuracy to those of his illustrious predecessor Eratosthenes, who made the distance from the sacred promontory in Spain to the eastern mouth of the Ganges to be seventy thousand stadia. Ptolemy also wrote on Optics, the Planisphere, and Astrology. It is not often given to an author to endure for so many ages; perhaps, indeed, few deserve it. The mechanism of the heavens, from his point of view, has, however, been greatly misunderstood. Neither he nor Hipparchus ever intended that theory as any thing more than a geometrical fiction. It is not to be regarded as a representation of the actual celestial motions. And, as might be expected, for such is the destiny of all unreal abstractions, the theory kept advancing in complexity as facts accumulated, and was on the point of becoming altogether unmanageable, when it was supplanted by the theory of universal gravitation, which has ever exhibited that inalienable attribute of a true theory—affording an explanation of every new fact as soon as it was discovered, without requiring to be burdened with new provisions, and prophetically foretelling phenomena which had not as yet been observed.

From the time of the Ptolemies the scientific spirit of the Alexandrian school declined; for though such mathematicians as Theodosius, whose work on Spherical Geometry was greatly valued by the Arab
The later Alexandrian geometers.
 geometers; and Pappus, whose mathematical collections, in eight books, still for the most part remain; and Theon, doubly celebrated for his geometrical attainments, and as being the father of the unfortunate Hypatia, A.D. 415, lived in the next three centuries, they are not men like their great predecessors. That mental strength which gives birth to original discovery had passed away. The commentator had succeeded to the philosopher. No new development illustrated the physical sciences; they were destined long to remain stationary. Mechanics could boast of no trophy like the proposition of Archimedes on the equilibrium of the lever; no new and exact ideas like those of the same great man on statical and hydrostatical pressure; no novel and clear views like those developed in his treatise on floating bodies; no mechanical invention like the first of all steam-engines—that of Hero. Natural Philosophy had come to a stop. Its great, and hitherto successfully cultivated department, Astronomy, exhibited no farther advance. Men were content with what had been
Decline of the Greek age of Reason.
 done, and continued to amuse themselves with reconciling the celestial phenomena to a combination of equable circular motions. To what are we to attribute this pause? Something had occurred to enervate the spirit of science. A gloom had settled on the Museum.

There is no difficulty in giving an explanation of this unfortunate condition. Greek intellect had reached the period of its maturity, and was entering on a decline; the talent which might have

been devoted to the service of science was in part allured to another pursuit, and in part repressed. Alexandria had sapped Athens, and in her turn Alexandria was sapped by Rome. Causes of that decline. From metropolitan pre-eminence she had sunk to be a mere provincial town. The great prizes of life were not so likely to be met with in such a declining city as in Italy or, subsequently, in Constantinople. Whatever affected these chief centres of Roman activity necessarily influenced her; but, such is the fate of the conquered, she must await their decisions. In the very institutions by which she had once been glorified, success could only be attained by a conformity to the manner of thinking fashionable in the imperial metropolis, and the best that could be done was to seek distinction in the path so marked out. Yet even with all this restraint Alexandria asserted her intellectual power, leaving an indelible impress on the new theology of her conquerors. During three centuries the intellectual atmosphere of the Roman empire had been changing. Men were unable to resist the steadily increasing pressure. Tranquillity could only be secured by passiveness. Things had come to such a state that the thinking of men was to be done for them by others, or, if they thought at all, it must be in accordance with a prescribed formula or rule. Greek intellect was passing into decrepitude, and the moral condition of the European world was in antagonism to scientific progress.

CHAPTER VII.

THE GREEK AGE OF INTELLECTUAL DECREPITUDE.

THE DEATH OF GREEK PHILOSOPHY.

Decline of Greek Philosophy: it becomes Retrospective, and in Philo the Jew and Apollonius of Tyana leans on Inspiration, Mysticism, Miracles.

NEO-PLATONISM founded by Ammonius Saccas, followed by Plotinus, Porphyry, Iamblicus, Proclus.—The Alexandrian Trinity.—Ecstasy.—Alliance with Magic, Necromancy.

The Emperor Justinian closes the philosophical Schools.

Summary of Greek Philosophy.—Its four Problems: 1. Origin of the World; 2. Nature of the Soul; 3. Existence of God; 4. Criterion of Truth.—Solution of these Problems in the Age of Inquiry—in that of Faith—in that of Reason—in that of Decrepitude.

Determination of the Law of Variation of Greek Opinion.—The Development of National Intellect is the same as that of Individual.

Determination of the final Conclusions of Greek Philosophy as to God, the World, the Soul, the Criterion of Truth.—Illustrations and Criticisms on each of these Points.

IN this chapter it is a melancholy picture that I have to present—the old age and death of Greek philosophy. The strong man of Aristotelism and Stoicism is sinking into the superannuated dotard; he is settling

Decline of Greek philosophy.

"Into the lean and slipper'd pantaloons,
 With spectacles on nose and pouch on side;
 His youthful hose, well saved, a world too wide
 For his shrunk shank; and his big manly voice,
 Turning again toward childish treble, pipes
 And whistles in his sound. Last scene of all,
 That ends this strange, eventful history,
 Is second childishness and mere oblivion—
 Sans teeth, sans eyes, sans taste, sans every thing."

He is full of admiration for the past and of contemptuous disgust at the present; his thoughts are wandering to the things that occupied him in his youth, and even in his infancy. Like those who are ready to die, he delivers himself up to religious preparation, without any farther concern whether the things on which he is depending are intrinsically true or false.

In this, the closing scene, no more do we find the vivid faith of Plato, the mature intellect of Aristotle, the manly self-control of Zeno. Greek philosophy is ending in garrulity and mysticism. It is leaning for help on the conjurer, juggler, and high-priest of Nature.

There are also new-comers obtruding themselves on the stage. The Roman soldier is about to take the place of the Greek thinker, and assert his claim to the effects of the intestate—to keep what suits him, and to destroy what he pleases. The Romans, advancing toward their age of Faith, are about to force their ideas on the European world.

Under the shadow of the Pyramids Greek philosophy was born; after many wanderings for a thousand years round the shores of the Mediterranean, it came back to its native place, and under the shadow of the Pyramids it died.

From the period of the New Academy the decline of Greek philosophy was uninterrupted. Inventive genius no longer existed; its place was occupied by the commentator. Instead of troubling themselves with inquiries after absolute truth, philosophers sought support in the opinions of the ancient times, and the real or imputed views of Pythagoras, Plato, or Aristotle were received as a criterion. In this, the old age of philosophy, men began to act as though there had never been such things as original investigation and discovery among the human race, and that whatever truth there was in the world was not the product of thought, but the remains of an ancient and now all but forgotten revelation from heaven—forgotten through the guilt and fall of man. There is something very melancholy in this total cessation of inquiry. The mental impetus, which one would have expected to continue for a season by reason of the momentum that had been gathered in so many ages, seems to have been all at once abruptly lost. So complete a pause is surprising: the arrow still flies on after it has parted from the bow: the wheel runs round though all the

It becomes retrospective.

vessels are finished. In producing this sudden stoppage, the policy of the early Cæsars greatly assisted. The principle of liberty of thought, which the very existence of the divers philosophical schools necessarily implied, was too liable to make itself manifest in aspirations for political liberty. While through the emperors the schools of Greece, of Alexandria, and Rome were depressed from that supremacy to which they might have aspired, and those of the provinces, as Marseilles and Rhodes, were relatively exalted, the former, in a silent and private way, were commencing those rivalries, the forerunners of the great theological struggles between them in after ages for political power. Christianity in its dawn was attended by a general belief that in the East there had been preserved a purer recollection of the ancient revelation, and that hence from that quarter the light would presently shine forth. Under the favoring influence of such an expectation, Orientalism, to which, as we have seen, Grecian thought had spontaneously arrived, was greatly re-enforced.

*Has arrived at
Oriental ideas.*

In this final period of Greek philosophy, the first to whom we must turn is Philo the Jew, who lived in the time of the Emperor Caligula. In harmony with the ideas of his nation, he derives all philosophy and useful knowledge from the Mosaic record, not hesitating to wrest Scripture to his use by various allegorical interpretations, asserting that man has fallen from his primitive wisdom and purity; that physical inquiry is of very little avail, but that an innocent life and a burning faith are what we must trust to. He persuaded himself that a certain inspiration fell upon him while he was in the act of writing, somewhat like that of the penmen of the Holy Scriptures. His readers may, however, be disposed to believe that herein he was self-deceived, judging both from the character of his composition and the nature of his doctrine. As respects the former, he writes feebly, is vacillating in his views, and, when watched in his treatment of a difficult point, is seen to be wavering and unsteady. As respects the latter, among other extraordinary things, he teaches that the world is the chief angel or first son of God; he combines all the powers of God into one force, the Logos, or holy Word, the highest powers being creative wisdom and governing mercy. From this are emitted all the mundane forces; and, since God can not do evil, the existence of evil in the world must be imputed to these emanating forces. It is very clear, therefore, that though Philo declined Oriental pantheism, he laid his foundation on the Oriental theory of Emanation.

*Philo the Jew
thinks he is
inspired.*

*His mystical
philosophy.*

As aiding very greatly in the popular introduction of Orientalism, Apollonius of Tyana must be mentioned. Under the auspices of the Empress Julia Domna, in a biographical composition, Philostratus had the audacity to institute a parallel between this man and our Savior. He was a miracle-worker, given to soothsaying and

*Apollonius
of Tyana.*

prophesying, led the life of an ascetic, his raiment and food being of the poorest. He attempted a reformation of religious rites and morals; denied the efficacy of sacrifice, substituting for it a simple worship and a pure prayer, scarce even needing words. He condemned the poets for propagating immoral fables of the gods, since they had thereby brought impurity into religion. He maintained the doctrine of transmigration.

Plutarch, whose time reaches to the Emperor Hadrian, has exercised an influence, through certain peculiarities of his style, which has extended even to us. As a philosopher he is to be classed among the Platonists, yet with a predominance of the prevailing Orientalism. His mental peculiarities seem to have unfitted him for an acceptance of the national faith, and his works commend themselves rather by the pleasant manner in which he deals with the topic on which he treats than by a deep philosophy. In some respects an analogy may be discerned between his views and those of Philo, the *Isis* of the one corresponding to the *Word* of the other. This disposition to Orientalism occurs still more strongly in succeeding writers; for example, Lucius Apuleius the Numidian, and Numenius: the latter embracing the opinion that had now become almost universal—that all Greek philosophy was originally brought from the East. In his doctrine a trinity is assumed, the first person of which is reason; the second the principle of becoming, which is a dual existence, and so gives rise to a third person, these three persons constituting, however, only one God. Having indicated the occurrence of this idea, it is not necessary for us to inquire more particularly into its details. As philosophical conceptions, none of the trinities of the Greeks will bear comparison with those of ancient Egypt, Amun, Maut, and Khonso, Osiris, Isis, and Horus; nor with those of India, Brahma, Vishnu, and Siva, the creator, preserver, and destroyer, or, the Past, the Present, and the Future of the Buddhists.

The doctrines of Numenius led directly to those of Neo-Platonism, of which, however, the origin is originally imputed to Ammonius Saccas of Alexandria, toward the close of the second century after Christ. The views of this philosopher do not appear to have been committed to writing. They are known to us through his disciples Longinus and Plotinus chiefly. Neo-Platonism, assuming the aspect of a philosophical religion, is distinguished for the conflict it maintained with the rising power of Christianity. Alexandria was the scene of this contest. The school which there arose lasted for about 300 years. Its history is not only interesting to us from its antagonism to that new power which soon was to conquer the Western world, but also because it was the expiring gasp of Grecian philosophy.

Plotinus, an about A.D. 204. He studied at

Is a miracle-worker and prophet.

Plutarch leans to platonizing Orientalism.

Numenius inclines to a trinitarian philosophy.

Ammonius Saccas founds Neo-Platonism.

Alexandria, and is said to have spent eleven years under Ammonius Saccas. He accompanied the expedition of the Emperor Gordian to Persia and India, and, escaping from its disasters, opened a philosophical school in Rome. In that city he was held in the highest esteem by the Emperor Gallienus; and the Empress Salina intended to build a city, in which Plotinus might inaugurate the celebrated Republic of Plato. The plan was not, however, carried out. With the best intention for promoting the happiness of man, Plotinus is to be charged with no little obscurity and mysticism. Eunapius says truly that the heavenly elevation of his mind and his perplexed style make him very tiresome and unpleasant. His repulsiveness is, perhaps, in a measure due to his want of skill in the art of composition, for he did not learn to write till he was fifty years old. He professed a contempt for the advantages of life and for its pursuits. He disparaged patriotism. An ascetic in his habits, eating no flesh and but little bread, he held his body in utter contempt, saying that it was only a phantom and a clog to the soul. He refused to remember his birthday. As has frequently been the case with those who have submitted to prolonged fasting and meditation, he believed that he had been privileged to see God with his bodily eye, and on six different occasions had been reunited to him. In such a mental condition, it may well be supposed that his writings are mysterious, unsequential, and diffuse. An air of Platonism, mingled with many Oriental ideas and ancient Egyptian recollections, pervades his works.

Like many of his predecessors, Plotinus recognized a difference between the mental necessities of the educated and the vulgar, justifying mythology on the ground that it was very useful to those who were not yet emancipated from the sensible. Aristotle, in his *Metaphysics*, referring to mythology and the gods in human form, had remarked, "Much has been mythically added for the persuasion of the multitude, and also on account of the laws and for other useful ends." But Plotinus also held that the gods are not to be moved by prayer, and that both they and the demons occasionally manifest themselves visibly; that incantations may be lawfully practiced, and are not repugnant to philosophy. In the body he discerns a penitential mechanism for the soul. He believes that the external world is a mere phantom—a dream—and the indications of the senses altogether deceptive. That union with the divinity of which he speaks he describes as an intoxication of the soul which, forgetting all external things, becomes lost in the contemplation of "the One." The doctrinal philosophy of Plotinus presents a trinity in accordance with the Platonic idea. (1.) The One, or Prime essence. (2.) The Reason. (3.) The Soul. Of the first he declares that it is impossible to speak fully, and in what he says on the point there are many apparent contradictions, as when he denies

Plotinus, a Mystic.
Reunion with God.

The trinity of
Plotinus.

oneness to the one. His ideas of the trinity are essentially based on the theory of emanation. He describes how the second principle issues by emanation out of the first, and the third out of the second. The mechanism of this process may be illustrated by recalling how from the body of the sun issues forth light, and from light emerges heat. In the procession of the third from the second principle it is really Thought arising from Reason; but thought is the Soul. The mundane soul he considers as united to nothing; but on these details he falls into much mysticism, and it is often difficult to see clearly his precise meaning, as when he says that Reason is surrounded by Eternity, but the Soul is surrounded by Time. He carries Idealism to its last extreme, and, as has been said, looks upon the visible world as a semblance only, deducing from his doctrine moral reflections to be a comfort in the trials of life. Thus he says that "sensuous life is a mere stage-play; all the misery in it is only imaginary, all grief a mere cheat of the players." "The soul is not in the game; it looks on, while nothing more than the external phantom weeps and laments." "Passive affections and misery light only on the outward shadow of man." The great end of existence is to draw the soul from external things and fasten it in contemplation on God. Such considerations teach us a contempt for virtue as well as for vice: "Once united with God, man leaves the virtues, as on entering the sanctuary he leaves the images of the gods in the ante-temple behind." Hence we should struggle to free ourselves from

every thing low and mean; to cultivate truth, and devote life to intimate communion with God, divesting ourselves of all personality, and passing into the condition of ecstasy, in which the soul is loosened from its material prison, separated from individual consciousness, and absorbed in the infinite intelligence from which it emanated. "In ecstasy it contemplates real existence; it identifies itself with that which it contemplates." Our reminiscence passes into intuition. In all these views of Plotinus the tincture of Orientalism predominates; the principles and practices are altogether Indian. The supreme being of the system is the "unus qui est omnia;" the intention of the theory of emanation is to find a philosophical connection between him and the soul of man; the process for passing into ecstasy by sitting long in an invariable posture, by looking steadfastly at the tip of the nose, or by observing for a long time an unusual or definite manner of breathing, had been familiar to the Eastern devotees, as they are now to the impostors of our own times; the result is not celestial, but physiological. The pious Hindus were, however, assured that, as water will not wet the lotus, so, though sin may touch, it can never defile the soul after a full intuition in God.

The opinions of Plotinus were strengthened and diffused by his celebrated pupil Porphyry, who was born at Tyre A.D. 233. After the

death of Plotinus he established a school in Rome, attaining great celebrity in astronomy, music, geography, and other sciences. His treatise against Christianity was answered by Eusebius, St. Jerome, and others; the Emperor Theodosius the Great, however, silenced it more effectually by causing all the copies to be burned. Porphyry—his writings destroyed;

Porphyry asserts his own unworthiness when compared with his master, saying that he had been united to God but once in eighty-six years, whereas Plotinus had been so united six times in sixty years. In him is to be seen all the mysticism, and, it may be added, all the piety of Plotinus. He speaks of demons shapeless, and therefore invisible; requiring food, but not immortal; some of which rule the air, and may be propitiated or restrained by magic: he admits also the use resorts to magic and necromancy. of necromancy. It is scarcely possible to determine how much this inclination of the Neo-Platonists to the unlawful art is to be regarded as a concession to the popular sentiment of the times, for elsewhere Porphyry does not hesitate to condemn soothsaying and divination, and to dwell upon the folly of invoking the gods in making bargains, marriages, and such like trifles. He strenuously enjoins a holy life in view of the fact that man has fallen both from his ancient purity and knowledge. He recommends a worship in silence and pure thought, the public worship being of very secondary importance. He also insists on an abstinence from animal food.

The cultivation of magic and the necromantic art was fully carried out in Iamblicus, a Coelo-Syrian, who died in the reign of Constantine the Great. It is scarcely necessary to relate the miracles and Iamblicus—a wonder-worker. prodigies he performed, though they received full credence in those superstitious times; how, by the intensity of his prayers, he raised himself unsupported nine feet above the ground; how he could make rays of a blinding effulgence play round his head; how, before the bodily eyes of his pupils, he evoked two visible demonish imps. Nor is it necessary to decide on the opinions of Ædesius, Chrysanthus, or Maximus; the atmosphere of their age was full of wonders and miracles.

For a moment, however, we may turn to Proclus, who was born in Constantinople A.D. 412. When Vitalian laid siege to Constantinople, Proclus is said to have burned his ships with a polished Proclus unites emanation with mysticism. brass mirror. It is scarcely possible for us to determine how much truth there is in this, since similar authority affirms that he could produce rain and earthquakes. His theurgic propensities are therefore quite distinct. Yet, notwithstanding these superhuman powers, together with special favors displayed to him by Apollo, Athene, and other divinities, he found it expedient to cultivate his rites in secret, in terror of persecution by the Christians, whose attention he had drawn upon him by writing a work in opposition to them. Eventually they

succeeded in expelling him from Athens, thereby teaching him a new interpretation of the moral maxim he had adopted, "Live concealed." It was the aim of Proclus to construct a complete theology, which should include the theory of emanation, and be duly embellished with mysticism. The Orphic poems and Chaldean oracles were the basis upon which he commenced; his character may be understood from the dignity he assumed as "high priest of the universe." He recommended to his disciples the study of Aristotle for the sake of cultivating the reason, but enjoined that of Plato, whose works he found to be full of sublime allegories suited to his purpose. He asserted that to know one's own mind is to know the whole universe, and that that knowledge is imparted to us by revelations and illuminations of the gods.

He speculates on the manner in which absorption is to take place; whether the last form can pass at once into the primitive, or whether it is needful for it to resume, in a returning succession, the intervening states of its career. From such elevated ideas, considering the mystical manner in which they were treated, there was no other prospect for philosophy than to end as Neo-Platonism did under Damasius. The final

Justinian puts an end to philosophy.

days were approaching. The Emperor Justinian prohibited the teaching of philosophy, and closed its schools in Athens A.D. 529. Its last representatives, Damasius, Simplicius, and Isidorus, went as exiles to Persia, expecting to find a retreat under the protection of the great king, who boasted that he was a philosopher and a Platonist. Disappointed, they were fain to return to their native land; and it must be recorded to the honor of Chosroes that, in his treaty of peace with the Romans, he stipulated safety and toleration for these exiles, vainly hoping that they might cultivate their philosophy and practice their rites without molestation.

So ends Greek philosophy. She is abandoned, and preparation made for crowning Faith in her stead. The inquiries of the Ionians, the reasoning of the Eleatics, the labors of Plato, of Aristotle, have sunk into mysticism and the art of the conjurer. As with the individual man, so with philosophy in its old age, when all else had failed it threw itself upon devotion, seeking consolation in the exercises of piety—a frame of mind in which it was ready to die. The whole period from the New Academy shows that the grand attempt, every year becoming more and more urgent, was to find a system which should be in harmony with that feeling of religious devotion into which the Roman empire had fallen—a feeling continually gathering force. An air of piety, though of a most delusive kind, had settled upon the whole pagan world.

From the long history of Greek philosophy presented in the foregoing pages, we turn, 1st, to an investigation of the manner of progress of the Greek mind; and, 2d, to the results to which it attained.

Summary of Greek philosophy.

The period occupied by the events we have been considering extends over almost twelve centuries. It commences with Thales, B.C. 636, and ends A.D. 529.

1st. Greek philosophy commenced on the foundation of physical suggestions. Its first object was the determination of the origin and manner of production of the world. The basis upon which it rested was in its nature unsubstantial, for it included intrinsic errors due to imperfect and erroneous observations. It diminished the world and magnified man, accepting the apparent aspect of Nature as true, and regarding the earth as a flat surface, on which the sky was sustained like a dome. It limited the boundaries of the terrestrial plane to an insignificant extent, and asserted that it was the special and exclusive property of man. The stars and other heavenly bodies it looked upon as mere meteors or manifestations of fire. With a superficial simplicity, it received the notions of absolute directions in space, up and down, above and below. In a like spirit it adopted, from the most general observation, the doctrine of four elements, those forms of substance naturally presented to us in a predominating quantity—earth, water, air, fire. From these slender beginnings it made its first attempt at a cosmogony, or theory of the mode of creation, by giving to one of these elements a predominance or superiority over the other three, and making them issue from it. With one teacher the primordial element was water; with another, air; with another, fire. Whether a genesis had thus taken place, or whether all four elements were co-ordinate and equal, the production of the world was of easy explanation; for, by calling in the aid of ordinary observation, which assures us that mud will sink to the bottom of water, that water will fall through air, that it is the apparent nature of fire to ascend, and, combining these illusory facts with the erroneous notion of up and down in space, the arrangement of the visible world became clear—the earth down below, the water floating upon it, the air above, and, still higher, the region of fire. Thus it appears that the first inquiry made by European philosophy was, Whence and in what manner came the world?

The principles involved in the solution of this problem evidently led to a very important inference, at this early period betraying what was before long to become a serious point of dispute. It is natural to man to see in things around him visible tokens of divinity, continual providential dispensations. But in this, its very first act, Greek philosophy had evidently excluded God from his own world. This settling of the heavy, this ascending of the light, was altogether a purely physical affair; the limitless sea, the blue air, and the unnumbered shining stars, were set in their appropriate places, not at the pleasure or by the hand of God, but by innate properties of their

Age of Inquiry—
its solutions.

First problem.
Origin of the
world.

Its irreligious so-
lution thereof.

own. Popular superstition was in some degree appeased by the localization of deities in the likeness of men in a starry Olympus above the sky, a region furnishing unsubstantial glories and a tranquil abode. And yet it is not possible to exclude altogether the spiritual from this world. The soul, ever active and ever thinking, asserts its kindred with the divine. What is that soul? Such was the second question propounded by Greek philosophy.

Second problem.
What is the soul? A like course of superficial observation was resorted to in the solution of this inquiry. To breathe is to live; then the breath is the life. If we cease to breathe we die. Man only becomes a living soul when the breath of life enters his nostrils; he is a senseless and impassive form when the last breath is expired. In this life-giving principle, the air, must therefore exist all those noble qualities possessed by the soul. It must be the source from which all intellect arises, the store to which all intellect again returns. The philosophical school whose fundamental principle was that the air is the primordial element thus brought back the Deity into the world, though under a material form. Its material solution thereof. Yet still it was in antagonism to the national polytheism, unless from that one god, the air, the many gods of Olympus arose.

Third problem.
What is God? But who is that one God? This is the third question put forth by Greek philosophy. Its answer betrays that in this, its beginning, it is tending to Pantheism.

In all these investigations the starting-point had been material conceptions, depending on the impressions or information of the senses. Whatever the conclusion arrived at, its correctness turned on the correctness of that information. When we put a little wine into a measure of water, the eye may no longer see it, but the wine is there. When a rain-drop falls on the leaves of a distant forest, we can not hear it, but the murmur of many drops composing a shower is audible enough. But what is that murmur except the sum of the sounds of all the individual drops?

And so it is plain our senses are prone to deceive us. Hence arises the fourth great question of Greek philosophy: Have we Fourth problem.
Has man a criterion of truth? any criterion of truth?

The moment a suspicion that we have not crosses the mind of man, he realizes what may be truly termed intellectual despair. Is this world an illusion, a phantasm of the imagination? If things material and tangible, and therefore the most solid props of knowledge, are thus abruptly destroyed, in what direction shall we turn? Within a single century Greek philosophy had come to this pass, and it was not without reason that intelligent men looked on Pythagoras almost as a divined out to them a path of escape; when it was that had thus taught

Importance of
the views of
Pythagoras.

when

it was that had thus taught

them the unreliability of sense. For what is it but reason that has been thus warning us, and, in the midst of delusions, has guided us to the truth—reason, which has objects of her own, a world of her own? Though the visible and audible may deceive, we may nevertheless find absolute truth in things altogether separate from material nature, particularly in the relations of numbers and properties of geometrical forms. There is no illusion in this, that two added to two make four; or in this, that any two sides of a triangle taken together are greater than the third. If, then, we are living in a region of deceptions, we may rest assured that it is surrounded by a world of truth.

From the material basis speculative philosophy gradually disengaged itself through the labors of the Eleatic school, the contro- Influence of the Eleatic school and the Sophists. versy as to the primary element receding into insignificance, and being replaced by investigations as to Time, Motion, Space, Thought, Being, God. The general result of these inquiries brought into prominence the suspicion of the unreliability of the senses, the tendency of the whole period being manifested in the hypothesis at last attained, that atoms and space alone exist; and, since the former are mere centres of force, matter is necessarily a phantasm. When, therefore, the Athenians themselves commenced a cultivation of philosophy, it was with full participation in the doubt and uncertainty thus overspreading the whole subject. As Sophists, their action closed this speculative period, for, by a comparison of all the partial sciences thus far known, they arrived at the conclusion that there is no conscience, no good or evil, no philosophy, no religion, no law, no criterion of truth.

But man can not live without some guiding rule. If his speculations in Nature will yield him nothing on which he may rely, he will seek some other aid. If there is no criterion of truth for him in philosophy, he will lean on implicit, unquestioning faith. If he can not prove by physical arguments the existence of God, he will, with Socrates, Age of faith—its solutions. accept that great fact as self-evident and needing no demonstration. He will, in like manner, take his stand upon the undeniable advantages of virtue and good morals, defending the doctrine that pleasure should be the object of life—pleasure of that pure kind which flows from a cultivation of ennobling pursuits, or instinctive, as exhibited in the life of brutes. But when he has thus cast aside demonstration as needless for his purposes, and put his reliance in this manner on faith, he has lost the restraining, the guiding principle that can set bounds to his conduct. If he considers, with Socrates, who opens the third age of Greek development—its age of faith—the existence of God as not needing any proof, he may, in like manner, add thereto Its continuation by Plato, and its end by the Skeptics. the existence of matter and ideas. To faith there will be no difficulty in such doctrines as those of Reminiscence, the double immortality of the soul, the actual existence of universals; and, if such

faith, unrestrained and unrestricted, is directed to the regulation of personal life, there is nothing to prevent a falling into excess and base egotism. For ethics, in such an application, ends either in the attempt at the procurement of extreme personal sanctity or the obtaining of individual pleasure—the foundation of patriotism is sapped, the sentiment of friendship is destroyed. So it was with the period of Grecian faith inaugurated by Socrates, developed by Plato, and closed by the Skeptics. Antisthenes and Diogenes of Sinope, in their outrages on society and self-mortifications, show to what end a period of faith, unrestrained by reason, will come; and Epicurus demonstrated its tendency when guided by self.

Thus closes the third period of Greek philosophical development.

In introducing us to a fourth, Aristotle insists that, though we must rely on reason, Reason itself must submit to be guided by Experience; and Zeno, taking up the same thought, teaches us that we must appeal to the decisions of common sense. He disposes of all doubt respecting the criterion of truth by proclaiming that the distinctness of our sensuous impressions is a sufficient guide. In all this, the essential condition involved is altogether different from that of the speculative ages, and also of the age of faith. Yet, though under the ostensible guidance of reason, the human mind ever seeks to burst through such self-imposed restraints, attempting to ascertain things for which it possesses no suitable data. Even in the age of Aristotle, the age of Reason in Greece, philosophy resumed such questions as those of the creation of the world, the emanation of matter from God, the existence and nature of evil, the immortality, or, alas! it might perhaps be more truly said, judging from its conclusions, the death of the soul, and this even after the Skeptics had, with increased force, denied that we have any criterion of truth, and showed to their own satisfaction that man, at the best, can do nothing but doubt; and, in view of his condition here upon earth, since it has not been permitted him to know what is right and what is wrong, what is true and what is false, his wisest course is to give himself no concern about the matter, but tranquilly sink into a state of complete indifference and quietism.

How uniformly do we see that through such variations of opinion individual man approaches his end. For Greek philosophy, what other prospect was there but decrepitude, with its contempt for the present, its attachment to the past, its distrust of man, its reliance on the mysterious—the unknown? And this imbecility how plainly we witness before the scene was finally closed.

If now we look back upon this career of the Grecian mind, we find that after the legendary pre-historic period—the age of credulity—there came in succession an age of speculative inquiry, an age of faith, an age of decrepitude—the first, the age of credulity,

was closed by geographical discovery; the second by the criticisms of the Sophists; the third by the doubts of the Sceptics; the fourth, eminently distinguished by the greatness of its results, gradually declined into the fifth, an age of decrepitude, to which the hand of the Roman put an end. In the mental progress of this people we therefore discern the forthshadowing of a course like that of individual life, its epochs answering to Infancy, Childhood, Youth, Manhood, Old Age; and which, on a still grander scale, as we shall hereafter find, has been repeated by all Europe in its intellectual development.

Duration of these ages.

In a space of 1150 years, ending about A.D. 529, the Greek mind had completed its philosophical career. The ages into which we have divided that course pass by insensible gradations into each other. They overlap and intermingle, like a gradation of colors, but the characteristics of each are perfectly distinct.

Boundaries of these ages.

2d. Having thus determined the general law of the variation of opinions, that it is the same in this nation as in an individual, I shall next endeavor to disentangle the final results attained, considering Greek philosophy as a whole. To return to the illustration, to us more than an empty metaphor, though in individual life there is a successive passage through infancy, childhood, youth, and manhood to old age, a passage in which the characteristics of each period in their turn disappear, yet, nevertheless, there are certain results in another sense permanent, giving to the whole progress its proper individuality. A critical eye may discern in the successive stages of Greek philosophical development decisive and enduring results. These it is for which we have been searching in this long and tedious discussion.

Determination of the law of variation of opinions.

Philosophical conclusions finally arrived at by the Greeks.

There are four grand topics in Greek philosophy: 1st, the existence and attributes of God; 2d, the origin and destiny of the world; 3d, the nature of the human soul; 4th, the possibility of a criterion of truth. I shall now present what appear to me to be the results at which the Greek mind arrived on each of these points.

(1.) Of the existence and attributes of God. On this point the decision of the Greek mind was the absolute rejection of all anthropomorphic conceptions, even at the risk of encountering the pressure of the national superstition. Of the all-powerful, all-perfect, and eternal there can be but one, for such attributes are absolutely opposed to any thing like a participation, whether of a spiritual or material nature; and hence the conclusion that the universe itself is God, and that all animate and inanimate things belong to his essence. In him they live, and move, and have their being. It is conceivable that God may exist without the world, but it is inconceivable that the world should exist without God. We must not, however, permit ourselves to be deluded by the varied aspect of things; for, though the universe is

As to God—his unity.

thus God, we know it not as it really is, but only as it appears. God has no relations to space and time. They are only the fictions of our finite imagination.

But this ultimate effort of the Greek mind is Pantheism. It is the same result which the more aged branch of the Indo-European family had long before reached. "There is no God independent of Nature; no other has been revealed by tradition, perceived by the sense, or demonstrated by argument."

Yet never will man be satisfied with such a conclusion. It offers him none of that aspect of personality which his yearnings demand. This infinite, and eternal, and universal is no intellect at all. It is passionless, without motive, without design. It does not answer to those lineaments of which he catches a glimpse when he considers the attributes of his own soul. He shudderingly turns from Pantheism, this final result of human philosophy, and, voluntarily retracing his steps, subordinates his reason to his instinctive feelings; declines the impersonal as having nothing in unison with him, and asserts a personal God, the Maker of the universe and the Father of men.

(2.) Of the origin and destiny of the world. In an examination of the results at which the Greek mind arrived on this topic, our labor is rendered much lighter by the assistance we receive from the decision of the preceding inquiry. The origin of all things is in God, of whom the world is only a visible manifestation. It is evolved by and from him, perhaps, as the Stoics delighted to say, as the plant is evolved by and from the vital germ in the seed. It is an emanation of him. On this point we may therefore accept as correct the general impression entertained by philosophers, Greek, Alexandrian, and Roman after the Christian era, that, at the bottom, the Greek and Oriental philosophies were alike, not only as respects the questions they proposed for solution, but also in the decisions they arrived at. As we have said, this impression led to the belief that there must have been in the remote past a revelation common to both, though subsequently obscured and vitiated by the infirmities and wickedness of man. This doctrine of emanation, reposing on the assertion that the world existed eternally in God, that it came forth into visibility from him, and will be hereafter absorbed into him, is one of the most striking features of Veda theology. It is developed with singular ability by the Indian philosophers as well as by the Greeks, and is illustrated by their poets.

The following extract from the Institutes of Menu will convey the Oriental conclusion: "This universe existed only in the first divine idea, yet unexpanded, as if involved in darkness; imperceptible, undefinable, undiscoverable by reason, and undiscovered by revelation, as if it were wholly immersed in sleep. Then the sole self-existing power, himself undiscerned, but making this world discernible,

But their solution
is Pantheism.

As to the world—
a manifestation
of God.

This solution
identical with
the Oriental.

with five elements and other principles of nature, appeared with undiminished glory, expanding his idea, or dispelling the gloom. He whom the mind can alone perceive, whose essence eludes the external organs, who has no visible parts, who exists from eternity—even He, the soul of all beings, whom no being can comprehend, shone forth in person. He, having willed to produce various beings from his own divine substance, first with a thought created the waters. The waters are so called (*nará*) because they were the production of *Nara*, or the spirit of God; and, since they were his first *ayaná*, or place of motion, he thence is named *Narayana*, or moving on the waters. From that which is the first cause, not the object of sense existing every where in substance, not existing to our perception, without beginning or end, was produced the divine male. He framed the heaven above, the earth beneath, and in the midst placed the subtle ether, the light regions, and the permanent receptacle of waters. He framed all creatures. He gave being to time and the divisions of time—to the stars also and the planets. For the sake of distinguishing actions, he made a total difference between right and wrong. He whose powers are incomprehensible, having created this universe, was again absorbed in the spirit, changing the time of energy for the time of repose."

From such extracts from the sacred writings of the Hindus we might turn to their poets, and find the same conceptions of the emanation, manifestation, and absorption of the world illustrated. "The Infinite being is like the clear crystal, which receives into itself all the colors and emits them again, yet its transparency or purity is not thereby injured or impaired." "He is like the diamond, which absorbs the light surrounding it, and glows in the dark from the emanation thereof." In similes of a less noble nature they sought to convey their idea to the illiterate. "Thou hast seen the spider spin his web, thou hast seen its excellent geometrical form, and how well adapted it is to its use; thou hast seen the play of tinted colors making it shine like a rainbow in the rays of the morning sun. From his bosom the little artificer drew forth the wonderful thread, and into his bosom, when it pleases him, he can withdraw it again. So *Brahm* made, and so will he absorb the world." In common the Greek and Indian asserted that being exists for the sake of thought, and hence they must be one; that the universe is a thought in the mind of God, and is unaffected by the vicissitudes of the worlds of which it is composed. In India this doctrine of emanation had reached such apparent precision that some asserted it was possible to demonstrate that the entire *Brahm* was not transmuted into mundane phenomena, but only a fourth part; that there occur successive emanations and absorptions, a periodicity in this respect being observed; that, in these considerations, we ought to guard ourselves from any deception arising from the visi-

Illustrations of the
origin, duration,
and absorption of
the world.

ble appearance of material things, for there is reason to believe that matter is nothing more than forces filling space. Democritus raised us to the noble thought that, small as it is, a single atom may constitute a world.

The doctrine of Emanation has thus a double interpretation. It sets forth the universe either as a part of the substance of God, or as an unsubstantial something proceeding from him: the former a conception more tangible and readily grasped by the mind; the latter of unapproachable sublimity, when we recall the countless beautiful and majestic forms which Nature on all sides presents. This visible world is only the shadow of God.

In the farther consideration of this doctrine of the issue, forthcoming, or emanation of the universe from God, and its return into or absorption by him, an illustration may not be without value. Out of the air, which may be pure and tranquil, the watery vapor often comes forth in a visible form, a misty fleece, perhaps no larger than the hand of a man at first, but a great cloud in the end. The external appearance the forthcoming form presents is determined by the incidents of the times; it may have a pure whiteness or a threatening blackness; its edges may be fringed with gold. In the bosom of such a cloud the lightning may be pent up, from it the thunder may be heard; but, even if it should not offer these manifestations of power, if its disappearance should be as tranquil as its formation, it has not existed in vain. No cloud ever yet formed on the sky without leaving an imperishable impression on the earth, for while it yet existed there was not a plant whose growth was not delayed, whose substance was not lessened. And of such a cloud, whose production we have watched, how often has it happened to us to witness its melting away into the untroubled air. From the untroubled air it came, and to the pure untroubled air it has again returned.

Now such a cloud is made up of countless hosts of microscopic drops, each maintaining itself separate from the others, and each, small though it may be, having an individuality of its own. The grand aggregate may vary its color and shape; it may be the scene of unceasing and rapid interior movements of many kinds, yet it presents its aspect unchanged, or changes tranquilly and silently, still glowing in the light that falls on it, still casting its shadow on the ground. It is an emblem of the universe according to the ancient doctrine, showing us how the visible may issue from the invisible, and return again thereto; that a drop too small for the unassisted eye to see may be the representative of a world. The spontaneous emergence and disappearance of a cloud is the emblem of a transitory universe issuing forth and disappearing, again to be succeeded by other universes, other like creations in the long lapse of time.

(3.) Of the nature of the soul. From the material quality assigned to the soul by the early Ionian schools, as that it was air, fire, or the like, there was a gradual passage to the opinion of its immateriality. To this, precision was given by the assertion that it As to the soul—a part of the divinity. had not only an affinity with, but even is a part of God. Whatever were the views entertained of the nature and attributes of the Supreme Being, they directly influenced the conclusions arrived at respecting the nature of the soul.

Greek philosophy, in its highest state of development, regarded the soul as something more than the sum of the moments of thinking. It held it to be a portion of the Deity himself. This doctrine is the necessary corollary of Pantheism. It contemplated a past eternity, a future immortality. It entered on such inquiries as whether the number of souls in the universe is constant. As upon the foregoing point, so upon this, there was a complete analogy between the decision arrived at in Grecian and that in Indian philosophy. Thus the latter says, "I am myself an irradiated manifestation of the supreme BRAHM." "Never was there a time in which I was not, nor thou, nor these princes of the people, and never shall I not be; henceforth we all are." Viewing the soul as merely a spectator and stranger in this world, they regarded it as occupying itself rather in contemplation than in action, asserting that in its origin it is an immediate emanation from the Divinity—not a modification nor a transformation of the Supreme, but a portion of him; "its relation is not that of a servant to his master, but of a part to the whole." It is like a spark separated from a flame; it migrates from body to body, sometimes found in the higher, then in the lower, and again in the higher tribes of life, occupying first one, then another body, as circumstances demand. And, as a drop of water pursues a devious career Its immortality and final absorption. in the cloud, in the rain, in the river, a part of a plant, or a part of an animal, but sooner or later inevitably finds its way back to the sea from which it came, so the soul, however various its fortunes may have been, sinks back at last into the divinity from which it emanated.

Both Greeks and Hindus turned their attention to the delusive phenomena of the world. Among the latter many figuratively supposed that what we call visible nature is a mere illusion befalling the soul, because of its temporary separation from God. In the Buddhist philosophy the world was thus held to be a creature of the imagination. But among some in those ancient, as among others in more modern times, it was looked upon as having a more substantial condition, and the soul a passive mirror in which things reflected themselves, or perhaps it might, to some extent, be the partial creator of its own forms. But, however that may be, its final destiny is a perfect repose after its absorption in the Supreme.

On this third topic of ancient philosophy an illustration may not be without use. As a bubble floats upon the sea, and, by reason of its form, reflects whatever objects may be present, whether the clouds in the sky, or the stationary and moving things on the shore, nay, even to a certain extent depicts the sea itself on which it floats, and from which it arose, offering these various forms not only in shapes resembling the truth in the proper order of light and shade, the proper perspective, the proper colors, but, in addition thereto, tincturing them all with a play of hues arising from itself, so it is with the soul. From a boundless and unfathomable sea the bubble arose. It does not in any respect differ in nature from its source. From water it came, and mere water it ever is. It gathers its qualities, so far as external things are concerned, only from its form, and from the circumstances under which it is placed. As the circumstances to which it is exposed vary, it floats here and there, merging into other bubbles it meets, and emerging from the collected foam again. In such migrations it is now larger, now less; at one moment passing into new shapes, at another lost in a coalescence of those around it. But whatever these its migrations, these its vicissitudes, there awaits it an inevitable destiny, an absorption, a reincorporation with the ocean. In that final moment, what is it that is lost? what is it that has come to an end? Not the essential substance, for water it was before it was developed, water it was during its existence, and water it still remains, ready to be re-expanded again.

Nor does the resemblance fail when we consider the general functions discharged while the bubble maintained its form. In it were depicted in their true shapes and relative magnitudes surrounding things. It hence had a relation to Space. And, if it was in motion, it reflected in succession the diverse objects as they passed by. Through such successive representations it maintained a relation to Time. Moreover, it imparted to the images it thus produced a coloration of its own, and in all this was an emblem of the Soul. For Space and Time are the outward conditions with which it is concerned, and it adds thereto abstract ideas, the product of its own nature.

But when the bubble bursts there is an end of all these relations. No longer is there any reflection of external forms, no longer any motion, no longer any innate qualities to add. In one respect the bubble is annihilated, in another it still exists. It has returned to that infinite expanse in comparison with which it is altogether insignificant and imperceptible. Transitory, and yet eternal: transitory, since all its relations of a special and individual kind have come to an end; eternal in a double sense—the sense of Platonism—since it was connected with a past of which there was no beginning, and continues in a future to which there is no end.

(4.) Of the possibility of a criterion of truth. An absolute criterion

Illustration of
the nature of
the soul.

Its continued exist-
ence—its Nirwana.

of truth must at once accredit itself, as well as other things. As to the criterion of truth—sense delusions. At a very early period in philosophy the senses were detected as being altogether unreliable. On numberless occasions, instead of accrediting, they discredit themselves. A stick, having a spark of fire at one end, gives rise to the appearance of a circle of light when it is turned round quickly. The rainbow seems to be an actually-existing arch until the delusion is detected by our going to the place over which it seems to rest. Nor is it alone as respects things for which there is an exterior basis or foundation, such as the spark of fire in one of these cases, and the drops of water in the other. Each of our organs of sense can palm off delusions of the most purely fictitious kind. The eye may present apparitions as distinct as the realities among which they locate themselves; the ear may annoy us with the continual repetition of a murmuring sound, or parts of a musical strain, or articulate voices, though we well know that it is all a delusion; and in like manner, in their proper way, in times of health, and especially in those of sickness, will the other senses of taste, and touch, and smell practice upon us their deceptions.

This being the case, how shall we know that any information derived from such unfaithful sources is true? Pythagoras rendered a great service in telling us to remember that we have within ourselves a means of detecting fallacy and demonstrating truth. What is it that assures us of the unreality of the fiery circle, the rainbow, the spectre, the voices, the crawling of insects upon the skin? Is it not reason? To reason may we not then trust?

With such facts before us, what a crowd of inquiries at once presses upon our attention—inquiries which even in modern times have occupied the thoughts of the greatest metaphysicians. Shall we begin our studies by examining sensations or by examining ideas? Uncertainties in philosophizing. Shall we say with Descartes that all clear ideas are true? Shall we inquire with Spinoza whether we have any ideas independent of experience? With Hobbes, shall we say that all our thoughts are begotten by and are the representatives of objects exterior to us; that our conceptions arise in material motions pressing on our organs, producing motion in them, and so affecting the mind; that our sensations do not correspond with outward qualities; that sound and noise belong to the bell and the air, and not to the mind, and, like color, are only agitations occasioned by the object in the brain; that imagination is a conception gradually dying away after the act of sense, and is nothing more than a decaying sensation; that memory is the vestige of former impressions, enduring for a time; that forgetfulness is the obliteration of such vestiges; that the succession of thought is not indifferent, at random, or voluntary, but that thought follows thought in a determinate and predestined sequence; that whatever we imagine is finite, and hence

we can not conceive of the infinite, nor think of any thing not subject to sense? Shall we say with Locke that there are two sources of our ideas, sensation and reflection; that the mind can not know things directly, but only through ideas? Shall we suggest with Leibnitz that reflection is nothing more than attention to what is passing in the mind, and that between the mind and the body there is a sympathetic synchronism? With Berkeley shall we assert that there is no other reason for inferring the existence of matter itself than the necessity of having some synthesis for its attributes; that the objects of knowledge are ideas and nothing else; and that the mind is active in sensation? Shall we listen to the demonstration of Hume, that, if matter is an unreal fiction, the mind is not less so, since it is no more than a succession of impressions and ideas; that our belief in causation is only the consequence of habit; and that we have better proof that night is the cause of day, than of thousands of other cases in which we persuade ourselves that we know the right relation of cause and effect; that from habit alone we believe the future will resemble the past? Shall we infer with Condillac that memory is only transformed sensation, and comparison double attention; that every idea for which we can not find an exterior object is destitute of significance; that our innate ideas come by development, and that reasoning and running are learned together. With Kant shall we conclude that there is but one source of knowledge, the union of the object and the subject—but two elements thereof, space and time; and that they are forms of sensibility, space being a form of internal sensibility, and time both of internal and external, but neither of them having any objective reality; and that the world is not known to us as it is, but only as it appears?

I admit the truth of the remark of Posidonius that a man might as well be content to die as to cease philosophizing; for, if there are contradictions in philosophy, there are quite as many in life. In the light of this remark, I shall therefore not hesitate to offer a few suggestions respecting the criterion of human knowledge, undiscouraged by the fact that so many of the ablest men have turned their attention to it. In this there might seem to be presumption, were it not that the advance of the sciences, and especially of human physiology, has brought us to a more elevated point of view, and enabled us to see the state of things much more distinctly than was possible for our predecessors.

I think that the inability of ancient philosophers to furnish a true solution of this problem was altogether owing to the imperfect, and, indeed, erroneous idea they had of the position of man. They gave too much weight to his personal individuality. In the mature period of his life they regarded him as isolated, independent, and complete in himself. They forgot that this is only a momentary

Remarks on the criterion.

Defective information of the old philosophy.

phase in his existence, which, commencing from small beginnings, exhibits a continuous expansion or progress. From a single cell, scarcely more than a step above the inorganic state, not differing, as we may infer both from the appearance it offers and the forms through which it runs in the earlier stages of life, from the cell out of which any other animal or plant, even the humblest, is derived, a passage is made through form after form in a manner absolutely depending upon surrounding physical conditions. The history is very long, and the forms are very numerous, between the first appearance of the primitive trace and the hoary aspect of seventy years. It is not correct to take one moment in this long procession and make it a representative of the whole. It is not correct to say, even if the body of the mature man undergoes unceasing changes to an extent implying the reception, incorporation, and dismissal of nearly a ton and a half of material in the course of a year, that in this flux of matter there is not only a permanence of form, but, what is of infinitely more importance, an unchangeableness in his intellectual powers. It is not correct to say this; indeed, it is wholly untrue. The intellectual principle passes forth in a career as clearly marked as that in which the body runs. Even if we overlook the time antecedent to birth, how complete is the imbecility of his early days! The light shines upon his eyes, he sees not; sounds fall upon his ear, he hears not. From these low beginnings we might describe in succession the successive re-enforcements through infancy, childhood, and youth to maturity. And what is the result to which all this carries us? Is it not that, in the philosophical contemplation of man, we are constrained to reject the idea of personality, of individuality, and to adopt that of a cycle of progress; to abandon all contemplation of his mere substantial form, and consider his abstract relation? All organic forms, if compared together and examined from one common point of view, are found to be constructed upon an identical scheme. It is as in some mathematical expression containing constants and variables; the actual result changes accordingly as we assign successively different values to the variables, yet in those different results, no matter how numerous they may be, the original formula always exists. From such a universal conception of the condition and career of man, we rise at once to the apprehension of his relations to others like himself—that is to say, his relations as a member of society. We perceive, in this light, that society must run a course the counterpart of that we have traced for the individual, and that the appearance of isolation presented by the individual is altogether illusory. Each individual man drew his life from another, and to another man he gives rise, losing, in point of fact, his aspect of individuality when these his race connections are considered. One epoch in life is not all life. The mature individual can not be disen-

Necessity of a more general conception as to man.

The whole cycle must be included,

and also his race connections.

tangled from the multitudinous forms through which he has passed; and, considering the nature of his primitive conception and the issue of his reproduction, man can not be separated from his race.

By the aid of these views of the nature and relationship of man, we can come to a decision respecting his possession of a criterion of truth. In the earliest moments of his existence he can neither feel nor think, and the universe is to him as though it did not exist. Considering the progress of his sensational powers—his sight, hearing, touch, etc.—these, as his cycle advances to its maximum, become, by nature or by education, more and more perfect; but never, at the best, as the ancient philosophers well knew, are they trustworthy. And so of his intellectual powers. They, too, begin in feebleness and gradually expand. The mind alone is no surer reliance than the organs of sense alone. If any doubt existed on this point, the study of the phenomena of dreaming is sufficient to remove it, for dreaming manifests to us how wavering and unsteady is the mind in its operations when it is detached from the solid support of the organs of sense. How true is the remark of Philo the Jew, that the mind is like the eye; for, though it may see all other objects, it can not see itself, and therefore can not judge of itself. And thus we may conclude that neither are the senses to be trusted alone, nor is the mind to be trusted alone. In the conjoint action of the two, by reason of the mutual checks established, a far higher degree of certainty is attained to; yet even in this, the utmost vouchsafed to the individual, there is not, as both Greeks and Indians ascertained, an absolute sureness. It was the knowledge of this which extorted from them so many melancholy complaints, which threw them into an intellectual despair, and made them, by applying the sad determination to which they had come to the course of their daily life, sink down into indifference and infidelity.

But yet there is something more in reserve for man. Let him cast off the clog of individuality, and remember that he has race connections—connections which, in this matter of a criterion of truth, indefinitely increase his chances of certainty. If he looks with contempt on the opinions of his childhood, with little consideration on those of his youth, with distrust on those of his manhood, what will he say about the opinions of his race? Do not such considerations teach us that, through all these successive conditions, the criterion of truth is ever advancing in precision and power, and that its maximum is found in the unanimous opinion of the whole human race?

Upon these principles I believe that, though we have not, philosophically speaking, any absolute criterion of truth, we rise by degrees to higher and higher certainties along an ascending scale which becomes more and more exact. I think that metaphysical writers who have treated on this point have been led into error

Though no absolute criterion exists, a practical one does.

from an imperfect conception of the true position of man; they have limited their thoughts to a single epoch of his course, and have not taken an enlarged and philosophical view. In thus declining the Oriental doctrine that the individual is the centre from which the universe should be regarded, and transferring our stand-point to a more comprehensive and solid foundation, we imitate, in metaphysics, the course of astronomy when it substituted the heliocentric for the geocentric point of view, and the change promises to be equally fertile in sure results. If it were worth while, we might proceed to enforce this doctrine by an appeal to the experience of ordinary life. How often, when we distrust our own judgment, do we seek support in the advice of a friend. How strong is our persuasion that we are in the right when public opinion is with us. For this even the Church has not disdained to call together Councils, aiming thereby at a surer means of arriving at the truth. The Council is more reliable than an individual, whoever he may be. The probabilities increase with the number of consenting intellects, and hence I come to the conclusion that in the unanimous con-
The maximum of certainty in the human race.
 sent of the entire human race lies the human criterion of truth—a criterion, in its turn, capable of increased precision with the diffusion of enlightenment and knowledge. For this reason, I do not look upon the prospects of humanity in so cheerless a light as they did of old. On the contrary, every thing seems full of hope. Good auguries may be drawn for philosophy from the great mechanical and material inventions which multiply the means of intercommunication, and, it may be said, annihilate terrestrial distances. In the intellectual collisions that must ensue, in the melting down of opinions, in the examinations and analyses of nations, truth will come forth. Whatever can not stand that ordeal must submit to its fate. Lies and imposture, no matter how powerfully sustained, must prepare to depart. In that supreme tribunal man may place implicit confidence. Even though, philosophically, it is far from absolute, it is the highest criterion vouchsafed to him, and from its decision he has no appeal.

In delivering thus emphatically my own views on this profound topic perhaps I do wrong. It is becoming to speak with humility on that which has been glorified by the great writers of Greece, of India, of Alexandria, and, in latter times, of Europe.

In conclusion, I would remark that the view here presented of the results of Greek philosophy is that which offers itself to me after a long and careful study of the subject. It is, however, the affirmative, not the negative result; for we must not forget that if, on the one
Complete analogy between Greek and Indian process of thought.
 hand, the pantheistic doctrines of the Nature of God, Universal Animation, the theory of Emanation, Transmutation, Absorption, Transmigration, etc., were adopted, on the other there was by no means an insignificant tendency to atheism and utter infidelity.

Even of this negative state a corresponding condition occurred in the Buddhism of India, of which I have previously spoken; and, indeed, so complete is the parallel between the course of mental evolution in Asia and Europe, that it is difficult to designate a matter of minor detail in the philosophy of the one which can not be pointed out in that of the other. It was not without reason, therefore, that the Alexandrian philosophers, who were profoundly initiated in the detail of both systems, came to the conclusion that such surprising coincidences could be only accounted for upon the admission that there had been an ancient revelation, the vestiges of which had descended to their time. In this, however, they judged erroneously; the true explanation consisting in the fact that the process of development of the intellect of man, and the final results to which he arrives in examining similar problems, are in all countries the same.

It does not fall within my plan to trace the application of these philosophical principles to practice in daily life, yet the subject is of such boundless interest that perhaps the reader will excuse a single paragraph. It may seem to superficial observation that, whatever might be the doctrinal resemblances of these philosophies, their application was very different. In a general way, it may be asserted that the same doctrines which in India led to the inculcation of indifference and quietism, led to Stoic activity in Greece and Italy. If the occasion permitted, I could, nevertheless, demonstrate in this apparent divergence an actual coincidence; for the mode of life of man is chiefly determined by geographical conditions, his instinctive disposition to activity increasing with the latitude in which he lives. Under the equinoctial line he has no disposition for exertion, his physiological relations with the climate making quietism most agreeable to him. The philosophical formula which, in the hot plains of India, finds its issue in a life of tranquillity and repose, will be interpreted in the more bracing air of Europe by a life of activity. Thus, in later ages, the monk of Africa, willingly persuading himself that any intervention to improve Nature is a revolt against the providence of God, spent his worthless life in weaving baskets and mats, or in solitary meditation in the caves of the desert of Thebais; but the monk of Europe encountered the labors of agriculture and social activity, and thereby aided, in no insignificant manner, in the civilization of England, France, and Germany. These things, duly considered, lead to the conclusion that human life, in its diversities, is dependent upon and determined by primary conditions in all countries and climates essentially the same.

Variation of practical application explained.

CHAPTER VIII.

DIGRESSION ON THE HISTORY AND PHILOSOPHICAL INFLUENCES OF ROME.

PREPARATION FOR RESUMING THE EXAMINATION OF THE INTELLECTUAL PROGRESS OF EUROPE.

Religious Ideas of the primitive Europeans.—The Form of their Variations is determined by the Influence of Rome.—Necessity of Roman History in these Investigations.
Rise and Development of Roman Power, its successive Phases, territorial Acquisitions.—Becomes Supreme in the Mediterranean.—Consequent Demoralization of Italy.—Irresistible Concentration of Power.—Development of Imperialism.—Eventual Extinction of the true Roman Race.
Effect on the intellectual, religious, and social Condition of the Mediterranean Countries.—Produces homogeneous Thought.—Imperialism prepares the Way for Monotheism.—Momentous Transition of the Roman World in its religious Ideas.
Opinions of the Roman Philosophers.—Coalescence of the new and old Ideas.—Seizure of Power by the Illiterate, and consequent Debasement of Christianity in Rome.

FROM the exposition given in the preceding pages of the intellectual progress of Greece, we now turn, agreeably to the plan laid down, to an examination of that of all Europe. The movement in that single nation is typical of the movement of the entire continent.

The first European intellectual age—that of Credulity—has already, in part, been considered in Chapter II., more especially so far as Greece was concerned. I propose now, after some necessary remarks in conclusion of that topic, to enter on the description of the second European age—that of Inquiry.

For these remarks, what has already been said of Greece prepares the way. Mediterranean Europe was philosophically and socially in advance of the central and northern countries. The wave of civilization passed from the south to the north; in truth, it has hardly yet reached its extreme limit. The adventurous emigrants who in remote times had come from Asia left to the successive generations of their descendants a legacy of hardship. In the struggle for life, all memory of an Oriental parentage was lost; knowledge died away; religious ideas became debased; and the diverse populations sank into the same intellectual condition that they would have presented had they been proper autochthons of the soil.

The religion of the barbarian Europeans was in many respects like that of the American Indians. They recognized a Great Spirit—omniscient, omnipotent, omnipresent. In the earliest

Transition from
Greece to Europe.

European age
of Inquiry.

Religion of the
old Europeans.

times they made no representation of him under the human form, nor had they temples; but they propitiated him by sacrifices, offering animals, as the horse, and even men, upon rude altars. Though it was believed that this great spirit might sometimes be heard in the sounds of the forests at night, yet, for the most part, he was too far removed from human supplication, and hence arose, from the mere sorcerous ideas of a terrified fancy, as has been the case in so many other countries, star worship—the second stage of comparative theology. The gloom and shade of dense forests, a solitude that offers an air of sanctity, and seems a fitting resort for mysterious spirits, suggested the establishment of sacred groves and holy trees. Throughout Europe there was a confused idea that the soul exists after the death of the body; as to its particular state there was a diversity of belief. As among other people also, the offices of religion were not only directed to the present benefit of individuals, but also to the discovery of future events by various processes of divination and augury practiced among the priests.

Although the priests had thus charge of the religious rites, they do not seem to have been organized in such a manner as to be able to act with unanimity, or to pursue a steady system of policy. A class of female religious officials—prophetesses—joined in the ceremonials. These holy women, who were held in very great esteem, prepared the way for the reception of Mariolatry. In the stead of temples, rock-altars, cromlechs, and other rustic structures were used among the Celtic nations by the Druids, who were at the same time priests, magicians, and medicine-men. Their religious doctrines, which recall in many particulars those of the Rig-Veda, were perpetuated from generation to generation by the aid of songs.

The essential features of this system were its purely local form and its want of a well-organized hierarchy. Even the Celts offer no exception, though they had a subordination from the arch-Druid downward. This was the reason of the weakness of the old faith, and eventually the cause of its fall. When the German nations migrated to the south in their warlike expeditions, they left behind them their consecrated groves and sacred oaks, hallowed by immemorial ages. These objects the devotee could not carry with him, and no equivalent substitutes could be obtained for them. In the civilized countries to which they came they met with a very different state of things; a priesthood thoroughly organized and modeled according to the ancient Roman political system; its objects of reverence tied to no particular locality; its institutions capable of universal action; its sacred writings easy of transportation any where; its emblems movable to all countries—the cross on the standards of its armies, the crucifix on the bosom of its saints. In the midst of the noble architecture of Italy and the splendid remains of those Roman emperors who once given laws to the world, in the

midst of a worship distinguished by the magnificence of its ceremonial and the solemnity of its mysteries, they found a people whose faith taught them to regard the present life as offering only a transitory occupation, and not for a moment to be weighed against the eternal existence hereafter—an existence very different from that of the base transmigration of Druidism or the drunken Paradise of Woden, where the brave solace themselves with mead from cups made of the skulls of their enemies killed in their days upon earth.

Influence of Roman Christianity upon them.

The European age of inquiry is therefore essentially connected with Roman affairs. It is distinguished by the religious direction it took. In place of the dogmas of rival philosophical schools, we have now to deal with the tenets of conflicting sects. The whole history of those unhappy times displays the organizing and practical spirit characteristic of Rome. Greek democracy, tending to the decomposition of things, led to the Sophists and Skeptics. Roman imperialism, ever constructive, sought to bring unity out of discords, and draw the line between orthodoxy and heresy by the authority of councils like that of Nicea. Following the ideas of St. Augustine in his work, "The City of God," I adopt, as the most convenient termination of this age, the sack of Rome by Alaric. This makes it overlap the age of Faith, which had, as its unmistakable beginning, the foundation of Constantinople.

Importance of Roman history in this investigation.

Greek intellectual life displays all its phases completely, but not so with that of the Romans, who came to an untimely end. They were men of violence, who disappeared in consequence of their own conquests and crimes. The consumption of them by war bore, however, an insignificant proportion to that fatal diminution, that mortal adulteration occasioned by their merging in the vast mass of humanity with which they came in contact.

I approach the consideration of Roman affairs, which is thus the next portion of my task, with no little diffidence. It is hard to rise to a point of view sufficiently elevated and clear, where the extent of dominion is so great geographically, and the reasons of policy are obscured by the dimness and clouds of so many centuries. Living in a social state the origin of which is in the events now to be examined, our mental vision can hardly free itself from the illusions of historical perspective, or bring things into their just proportions and position. Of a thousand acts, all of surpassing interest and importance, how shall we identify the master ones? how shall we discern with correctness the true relation of the parts of this wonderful phenomenon of empire, the vanishing events of which glide like dissolving views into each other? Warned by the example of those who have permitted the shadows of their own imagination to fall upon the scene, and have mistaken them for a part thereof, I shall endeavor to apply the test of com-

Great difficulty of treating it.

mon sense to the facts of which it will be necessary to treat; and, believing that man has ever been the same in his mode of thought and motives of action, I shall judge of past occurrences in the same way as of those of our own times.

In its entire form the Roman power consists of two theocracies, with a military domination intercalated. The first of these theocracies corresponds to the fabulous period of the kings; the military domination to the time of the republic and earlier Cæsars; the second theocracy to that of the Christian emperors and the popes.

The first theocracy is so enveloped in legends and fictions that it is impossible to give a satisfactory account of it. The biographies of the kings offer such undeniable evidence of being mere romances, that, since the time of Niebuhr, they have been received by historians in that light.

But during the reigns of the pagan emperors it was not safe in Rome to insinuate publicly any disbelief in such honored legends as those of the wolf that suckled the foundlings; the ascent of Romulus into heaven; the nymph Egeria; the duel of the Horatii and Curiatii; the leaping of Curtius into the gulf on his horse; the cutting of a flint with a razor by Tarquin; the Sibyl and her books. The modern historian has, therefore, only very little reliable material. He may admit that the Romans and Sabines coalesced; that they, conquered the Albans and Latins; that thousands of the latter were transplanted to Mount Aventine and made plebeians, these movements being

the origin of the castes which long afflicted Rome, the vanquished people constituting a subordinate class; that at first the chief occupation was agriculture, the nature of which is not only to accustom men to the gradations of rank, such as the proprietor of the land, the overseer, the laborer, but also to the cultivation of religious sentiment, and even the cherishing of superstition; that, besides the more honorable occupations in which the rising state was engaged, she had, from the beginning, indulged in aggressive war, and was therefore perpetually liable to reprisal—one of her first acts was the founding of the town of Ostia, at the mouth of the Tiber, on account of piracy; that, through some conspiracy in the army, indicated in the legend of Lucretia, since armies have often been known to do such things, the kings were expelled, and a military domination, fancifully called a republic, but consisting of a league of some powerful families, arose.

Throughout the regal times, and far into the republican, the chief domestic incidents turn on the strife of the upper caste or patricians with the lower or plebeians, manifesting itself in the latter asserting their right to a share in the lands conquered by their valor; by the extortion of the Valerian law; by the admission of the Latins and Hernicans to conditions of equality; by the transference of the election of tribunes from the centurion to the plebeian; by the repeal of the law prohibiting the

marriage of plebeians with patricians, and by the eventual concession to the former of the offices of consul, dictator, censor, and prætor.

In these domestic disputes we see the origin of the Roman necessity for war. The high caste is steadily diminishing in number, The domestic necessity for foreign war. the low caste as steadily increasing. In imperious pride, the patrician fills his private jail with debtors and delinquents; he usurps the lands that have been conquered. Insurrection is the inevitable consequence, foreign war the only relief. As the circle of operations extends, both parties see their interest in a cordial coalescence on equal terms, and jointly tyrannize exteriorly.

The geographical dominion of Rome was extended at first with infinite difficulty. Up to the time of the capture of the city by the Gauls a doubtful existence was maintained in perpetual struggles with the adjacent towns and chieftains. There is reason to believe that in the very infancy of the republic, in the contest that ensued upon the expulsion of the kings, the city was taken by Porsenna. The direction in which her influence first spread was toward the south of the pen- Gradual spread of Roman influence to the south. insula. Tarentum, one of the southern states, brought over to its assistance Pyrrhus the Epirot. He did little in the way of assisting his allies—he only saw Rome from the Acropolis of Præneste; but from him the Romans learned the art of fortifying camps, and caught the idea of invading Sicily. Here the rising republic came in contact with the Carthaginians, and in the conflict that ensued discovered the military value of Spain and Gaul, from which the Carthaginians drew an immense supply of mercenaries and munitions of war. The advance to greatness which Rome now made was prodigious. She saw that every thing turned on the possession of the sea, and with admirable energy built a navy. Rome builds a navy. In this her expectations were more than realized. The assertion is quite true that she spent more time in acquiring a little earth in Italy than was necessary for subduing the world after she had once got possession of the Mediterranean. From the experience of Agathocles she learned that the true method of controlling Carthage was by invading Africa. and invades Africa. The principles involved in the contest, and the position of Rome at its close, are shown by the terms of the treaty of the first Punic War—that Carthage should evacuate every island in the Mediterranean, and pay a war-fine of three millions of dollars. Results of the first Punic War. In her devotion to the acquisition of wealth Carthage had become very rich; she had reached a high state of cultivation of art; yet her prosperity, or rather the mode by which she had attained it, had greatly weakened her, as also had the political anomaly under which she was living, for it is an anomaly that an Asiatic people should place itself under democratic forms. Her condition in this respect was evidently the consequence of her original subordinate position as a Tyrian trading station, her rich men having for

long been habituated to look to the mother city for distinction. As in other commercial states, her citizens became soldiers with reluctance, and hence she had often to rely on mercenary troops. From her the Romans received lessons of the utmost importance. She confirmed them in the estimate they had formed of the value of naval power; taught them how to build ships properly and handle them; how to make military roads. The tribes of Northern Italy were hardly included in the circle of Roman dominion when a fleet was built in the Adriatic, and, under the pretense of putting down piracy, the sea-power of the Illyrians was extinguished. From time immemorial the Mediterranean had been infested with pirates; man-stealing had been a profitable occupation, great gains being realized by ransoms of the captives, or by selling them at Delos or other slave-markets. At this time it was clear that the final mastery of the Mediterranean turned on the possession of Spain, the great silver-producing country. The rivalry for Spain occasioned the second Punic War. It is needless to

Results of the second Punic War.

repeat the well-known story of Hannibal, how he brought Rome to the brink of ruin. The relations she maintained with surrounding communities had been such that she could not trust to them. Her enemy found allies in many of the Greek towns in the south of Italy. It is enough for us to look at the result of that conflict in the treaty that closed it. Carthage had to give up all her ships of war except ten triremes, to bind herself to enter into no war without the consent of the Roman people, and to pay a war-fine of ten millions of dollars. Rome now entered, on the great scale, on the policy of disorganizing states for the purpose of weakening them. Under pretext of an invitation from the Athenians to protect them from the King of

Rome invades Greece,

Macedon, the ambitious republic secured a footing in Greece, the principle developed in the invasion of Africa of making war maintain war being again resorted to. There may have been truth

in the Roman accusation that the intrigues of Hannibal with Antiochus, king of Syria, occasioned the conflict between them and that monarch. Its issue was a prodigious event in the material aggrandizement of Rome—it was the cession of all his possessions in Europe and those of

and compels the cession of all the European provinces of Antiochus.

Asia north of Mount Taurus, with a war-fine of fifteen millions of dollars. Already were seen the effects of the wealth

that was pouring into Italy in the embezzlement of the public money by the Scipios. The resistance of Perses, king of Macedon,

Revolt of Perses.

could not restore independence to Greece; it ended in the annexation of that country, Epirus, and Illyricum. The results of this war were to the last degree pernicious to the victors and the vanquished; the moral greatness of the former is truly affirmed to have disappeared, and the social ruin of the latter was so complete that for long marriage was replaced by concubinage. The policy and practices of

Rome now literally became infernal; she forced a quarrel upon her old antagonist Carthage, and the third Punic War resulted in the utter destruction of that city. Simultaneously her oppressions in Greece provoked revolt, which was ended by the sack and burning of Corinth, Thebes, Chalcis, and the transference of the plundered statues, paintings, and works of art to Italy. There was nothing now in the way of the conquest of Spain except the valor of its inhabitants. After the assassination of Viriatus, procured by the Consul Cæpio, and the horrible siege of Numantia, that country was annexed as a province. Next we see the gigantic republic extending itself over the richest parts of Asia Minor, through the insane bequest of Attalus, king of Pergamus. The wealth of Africa, Spain, Greece, and Asia was now concentrating in Italy, and the capital was becoming absolutely demoralized. In vain the Gracchi attempted to apply a remedy. The Roman aristocracy was intoxicated, insatiate, irresistible. The middle class was gone; there was nothing but profligate nobles and a diabolical populace. In the midst of inconceivable corruption, the Jugurthine War served only to postpone for a moment an explosion which was inevitable. The Servile rebellion in Sicily broke out; it was closed by the extermination of a million of those unhappy wretches: vast numbers of them were exposed, for the popular amusement, to the wild beasts in the arena. It was followed closely by the revolt of the Italian allies, known as the Social War—this ending, after the destruction of half a million of men, with a better result, in the extortion of the freedom of the city by several of the revolting states. Doubtless it was the intrigues connected with these transactions that brought the Cimbri and Teutons into Italy, and furnished an opening for the rivalries of Marius and Sylla, who, in turn, filled Rome with slaughter. The same spirit broke out under the gladiator Spartacus: it was only checked for a time by resorting to the most awful atrocities, such as the crucifixion of prisoners, to appear under another form in the conspiracy of Catiline. And now it was plain that the contest for supreme power lay between a few leading men. It found an issue in the first triumvirate—a union of Pompey, Crassus, and Cæsar, who usurped the whole power of the senate and people, and bound themselves by oath to permit nothing to be done without their unanimous consent. Affairs then passed through their inevitable course. The death of Crassus and the battle of Pharsalia left Cæsar the master of the world. At this moment nothing could have prevented the inevitable result. The dagger of Brutus merely removed a man, but it left the fact. The battle of Actium reaffirmed the destiny of Rome, and the death of the republic was illustrated by the annexation of Egypt. The circle of conquest around the Mediterranean was complete; the function of the republic was discharged: it did not pass away prematurely.

Dreadful social effects on Rome.

Plunder of Greece and annexation of Spain.

Seizure of Asia Minor

The Servile and Social wars.

Gradual convergence of power.

Cæsar the master of the world.

From this statement of the geographical career of Rome, we may turn to reflect on the political principles which inspired her. From a remote antiquity wars had been engaged in for the purpose of obtaining a supply of labor, the conqueror compelling those whom he had spared to cultivate his fields and serve him as slaves. Under a system of transitory military domination, it was more expedient to exhaust a people at once by the most unsparing plunder than to be content with a tribute periodically paid, but necessarily uncertain in the vicissitudes of years. These elementary principles of the policy of antiquity were included by the Romans in their system with modifications and improvements.

The republic, during its whole career, illustrates the observation that the system on which it was founded included no conception of the actual relations of man. It dealt with him as a thing, not as a being endowed with inalienable rights. Recognizing power as its only measure of value, it could never accept the principle of the equality of all men in the eye of the law. The subjugation of Sicily, Africa, Greece, was quickly followed by the depopulation of those countries, as Livy, Plutarch, Strabo, and Polybius testify. Can there be a more fearful instance than the conduct of Paulus Æmilius, who, at the conquest of Epirus, murdered or carried into slavery 150,000 persons? At the taking of Thebes whole families were thus disposed of, and these not of the lower, but of the respectable kind, of whom it has been significantly said that they were transported into Italy to be melted down. In Italy itself the consumption of life was so great that there was no possibility of the slaves by birth meeting the requirement, and the supply of others by war became necessary. To these slaves the laws were atrociously unjust. Tacitus has recorded that on the occasion of the murder of Pedanius, after a solemn debate in the senate, the particulars of which he furnishes, the ancient laws were enforced, and four hundred slaves of the deceased were put to death, when it was obvious to every one that scarcely any of them had known of the crime. The horrible maxim that not only the slaves within a house in which a master was murdered, but even those within a circle supposed to be measured by the reach of his voice, should be put to death, shows us the small value of the life of these unfortunates, and the facility with which they could be replaced. Their vast numbers necessarily made every citizen a soldier; the culture of the land and the manufacturing processes, the pursuits of labor and industry, were assigned to them with contempt. The relation of the slave in such a social system is significantly shown by the fact that the courts estimated the amount of any injury he had received by the damage his master had thereby sustained. To such a degree had this system been developed, that slave labor was actually cheaper than animal

Ancient necessity
for slave-wars.

Depopulation of
countries after
Roman conquest.

Atrocity of the
Roman slave-
laws.

Social effects
of the Roman
slave-system.

labor, and, as a consequence, much of the work that we perform by cattle was then done by men. The class of independent hirelings, which should have constituted the chief strength of the country, disappeared, labor itself becoming so ignoble that the poor citizen could not be an artisan, but must remain a pauper—a sturdy beggar, expecting from the state bread and amusements. The personal uncleanness and shiftless condition of these lower classes were the true causes of the prevalence of leprosy and other loathsome diseases. Attempts at sanitary improvement were repeatedly made, but they so imperfectly answered the purpose that epidemics, occurring from time to time, produced a dreadful mortality. Even under the Cæsars, after all that had been done, there was no essential amendment. The assertion is true that the Old World never recovered from the great plague in the time of M. Antoninus, brought by the army from the Parthian War. In the reign of Titus ten thousand persons died in one day in Rome.

The slave system bred that thorough contempt for trade which animated the Romans. They never grudged even the Carthaginians a market. It threw them into the occupation of the demagogue, making them spend their lives, when not engaged in war, in the intrigues of political factions, the turbulence of public elections, the excitement of lawsuits. They were the first to discover that the privilege of interpreting laws is nearly equal to that of making them; and to this has been rightly attributed their turn for jurisprudence, and the prosperity of advocates among them. The disappearance of the hireling class was the immediate cause of the downfall of the republic and the institution of the empire, for the aristocracy were left without any antagonist, and, therefore, without any restraint. They broke up into factions, involving the country in civil war by their struggles with each other for power.

The political maxims of the republic, for the most part, rejected the ancient system of devastating a vanquished state by an instant, unsparing, and crushing plunder, which may answer very well where the tenure is expected to be brief, but does not accord with the form-
 ula subdue, retain, advance. Yet depopulation was the nec-
 essary incident. Italy, Sicily, Asia Minor, Gaul, Germany, were full of people, but they greatly diminished under Roman occupation. Her maxims were capable of being realized with facility through her military organization, particularly that of the legion. In some nations colonies are founded for commercial purposes, in others for getting rid of an excess of population: the Roman colony implies the idea of a garrison and an active military intent. Each legion was, in fact, so constructed as to be a small but complete army. In whatever country it might be encamped, it was in quick communication with the headquarters at Rome; and this not metaphorically, but materially, as was shown

The war system.

by the building of the necessary military roads. The idea of permanent occupation, which was thus implied, did not admit the expediency of devastating a country, but, on the contrary, led to the encouragement of provincial prosperity, because the greater the riches the greater the capacity for taxation. Such principles were in harmony with the conditions of solidity and security of the Roman power, which proverbially had not risen in a single day—was not the creation of a single fortunate soldier, but represented the settled policy of many centuries. In the act of conquest Rome was inhuman; she tried to strike a blow that there would never be any occasion to repeat; no one was spared who by possibility might inconvenience her; but, the catastrophe once over, as a general thing, the vanquished had no occasion to complain of her rule. Of course, in the shadow of public justice, private wrong and oppression were often concealed. Her officers accumulated enormous fortunes, which have never since been equaled in Europe, through injustice and extortion. Sometimes the like occurred in times of public violence; thus Brutus made Asia Minor pay five years' tribute at once, and shortly after Antony compelled it to do it again. The extent to which recognized and legitimate exactions were carried is shown by the fact that upon the institution of the empire the annual revenues were about two hundred millions of dollars.

The comparative value of metals in Rome is a significant political indication. Bullion rapidly increased during the Carthaginian wars. At the opening of the first Punic War silver and copper were as 1 to 960; at the second Punic War the ratio had fallen, and was 1 to 160; soon after there was another fall, and it became 1 to 128. The republic debased the coinage by reducing its weight, the empire by alloying it.

The science, art, and political condition of nations are often illustrated by their coinage. An interesting view of the progress of Europe might be obtained from a philosophical study of its numismatic remains. The simplicity of the earlier ages is indicated by the pure silver, such as that coined at Crotona B.C. 600—the reign of Philip of Macedon by the native unalloyed gold. A gradual decline in Roman prosperity is more than shadowed forth by the gradual deterioration of its money; for, as evil times befell the state, the emperors were compelled to utter a false coinage. Thus, under Vespasian, A.D. 69, the silver money contained about one fourth of its weight of copper; under Antoninus Pius, A.D. 138, more than one third; under Commodus, A.D. 180, nearly one half; under Gordian, A.D. 236, there was added to the silver more than twice its weight of copper. Nay, under Gallienus, a coinage was issued of copper, tin, and silver, in which the two first metals exceed the last by more than two hundred times its weight. It shows to what a hopeless condition the state had come.

Value of gold
and silver.

Connection between
debasement of coin-
age and political
decline.

The Roman demagogues, as is the instinct of their kind, made political capital by attacking industrial capital. They lowered the rate of interest, prohibited interest, and often attempted the abolition of debts.

The concentration of power and increase of immorality proceeded with an equal step. In its earlier ages, the Roman dominion was exercised by a few thousand persons; then it passed into the hands of some score families; then it was sustained for a moment by individuals, and at last was seized by one man, who became the master of 120 millions. As the process went on, the virtues which had adorned the earlier times disappeared, and in the end were replaced by crimes such as the world had never before witnessed and never will again. An evil day is approaching when it becomes recognized in a community that the only standard of social distinction is wealth. That day was soon followed in Rome by its unavoidable consequence, a government founded upon two domestic elements, corruption and terrorism. No language can describe the state of that capital after the civil wars. The accumulation of power and wealth gave rise to a universal depravity. Law ceased to be of any value. A suitor must deposit a bribe before a trial could be had. The social fabric was a festering mass of rotteness. The people had become a populace; the aristocracy was demoniac; the city was a hell. No crime that the annals of human wickedness can show was left unperpetrated: remorseless murders; the betrayal of parents, husbands, wives, friends; poisoning reduced to a system; adultery degenerating into incests, and crimes that can not be written. Women of the higher class were so lascivious, depraved, and dangerous, that men could not be compelled to contract matrimony with them; marriage was displaced by concubinage; even virgins were guilty of inconceivable immodesties; great officers of state and ladies of the court, of promiscuous baths and naked exhibitions. In the time of Cæsar it had become necessary for the government to interfere, and actually put a premium on marriage. He gave rewards to women who had many children; prohibited those who were under forty-five years of age, and who had no children, from wearing jewels and riding in litters, hoping by such social disabilities to correct the evil. It went on from bad to worse, so that Augustus, in view of the general avoidance of legal marriage and resort to concubinage with slaves, was compelled to impose penalties on the unmarried—to enact that they should not inherit by will except from relations. Not that the Roman women refrained from the gratification of their desires; their depravity impelled them to such wicked practices as can not be named in a modern book. They actually reckoned the years, not by the consuls, but by the men they had lived with. To be childless, and therefore without the natural restraint of a family, was looked upon as a singular felicity. Plutarch correctly touched the point when he said

Indescribable depravity in the Roman decline.

Dissoluteness of the women, and avoidance of marriage.

that the Romans married to be heirs and not to have heirs. Of offenses that do not rise to the dignity of atrocity, but which excite our loathing, such as gluttony and the most debauched luxury, the annals of the times furnish disgusting proofs. It was said, "They eat that they may vomit, and vomit that they may eat." At the taking of Perusium, three hundred of the most distinguished citizens were solemnly sacrificed at the altar of Divus Julius by Octavian! Are these the deeds of civilized men, or the riotings of cannibals drunk with blood?

The higher classes on all sides exhibited a total extinction of moral principle; the lower were practical atheists. Who can peruse the annals of the emperors without being shocked at the manner in which men died, meeting their fate with the obtuse tranquillity that characterizes the beasts? A centurion with a private mandate appears, and forthwith the victim opens his veins and dies in a warm bath. At the best, all that was done was to strike at the tyrant. Men despairingly acknowledged that the system itself was utterly past cure.

That in these statements I do not exaggerate, hear what Tacitus says: "The holy ceremonies of religion were violated; adultery reigning without control; the adjacent islands filled with exiles; rocks and desert places stained with clandestine murders, and Rome itself a theatre of horrors, where nobility of descent and splendor of fortune marked men out for destruction; where the vigor of mind that aimed at civil dignities, and the modesty that declined them, were offenses without distinction; where virtue was a crime that led to certain ruin; where the guilt of informers and the wages of their iniquity were alike detestable; where the sacerdotal order, the consular dignity, the government of provinces, and even the cabinet of the prince, were seized by that execrable race as their lawful prey; where nothing was sacred, nothing safe from the hand of rapacity; where slaves were suborned, or by their own malevolence excited against their masters; where freemen betrayed their patrons, and he who had lived without an enemy died by the treachery of a friend."

But, though these were the consequences of the concentration of power and wealth in the city of Rome, it was otherwise in the expanse of the empire. The effect of Roman domination was the cessation of all the little wars that had heretofore been waged between adjacent people. They exchanged independence for peace. Moreover, and this, in the end, was of the utmost importance to them all, unrestricted commerce ensued, direct trade arising between all parts of the empire. The Mediterranean nations were brought closer to each other, and became common inheritors of such knowledge as was then in the world. Arts, sciences, improved agriculture, spread among them; the most distant countries could boast of noble roads, aqueducts, bridges,

The whole system
is past cure.

Testimony
of Tacitus.

Effects in the
provinces. Free
trade.

and great works of engineering. In barbarous places, the legions that were intended as garrisons proved to be foci of civilization. For the provinces, even the wickedness of Rome was not without some good. From one quarter corn had to be brought; from another, clothing; from another, luxuries; and Italy had to pay for it all in coin. She had nothing to export in return. By this there was a tendency to equalization of wealth in all parts of the empire, and a perpetual movement of money. Nor was the advantage altogether material; there were conjoined intellectual results of no little value. Superstition and the amazing credulity of the old times disappeared. In the Intellectual advancement. first Punic War, Africa was looked upon as a land of monsters; it had serpents large enough to stop armies, and headless men. Sicily had its Cyclops, giants, enchantresses; golden apples grew in Spain; the mouth of Hell was on the shores of the Euxine. The marches of the legions and the voyages of merchants made all these phantasms vanish.

It was the necessary consequence of her military aggrandizement that the ethnical element which really constituted Rome should Disappearance of the Roman ethnical element. expire. A small nucleus of men had undertaken to conquer the Mediterranean world, and had succeeded. In doing this they had diffused themselves over an immense geographical surface, and necessarily became lost in the mass with which they mingled. On the other hand, the deterioration of Italy was insured by the slave system, and the ruin of Rome was accomplished before the barbarians touched it. Whoever inquires the cause of the fall of the Roman empire will find his answer in ascertaining what had become of the Romans.

The extinction of prodigies and superstitious legends was occasioned by increased travel through the merging of many separate nations into one great empire. Intellectual communication attends material communication. The spread of Roman influence around the borders Roman conquest produces homogeneous thought, of the Mediterranean produced a tendency to homogeneous thought eminently dangerous to the many forms of faith professed by so many different people.

After Tarquin was expelled the sacerdotal class became altogether subordinate to the military, whose whole history shows that they regarded religion as a mere state institution, without any kind of philosophical significance, and chiefly to be valued for the control it furnished over vulgar minds. It presented itself to them in the light of a branch of industry, from which profit might be made by those who practiced it. They thought no more of concerning themselves individually about it than in taking an interest in any other branch of lucrative trade. As to any examination of its intellectual basis, they were not sophists, but soldiers, blindly following the prescribed institutions of and revolutionizes religious ideas. their country with as little question as its military commands. For these reasons, throughout the time of the republic, and

also under the early emperors, there never was much reluctance to the domestication of any kind of worship in Rome. Indeed, the gods of the conquered countries were established there to the gratification of the national vanity. From this commingling of worship in the city, and intercommunication of ideas in the provinces, the most important events arose.

For it very soon was apparent that the political unity which had been established over so great a geographical surface was the forerunner of intellectual, and therefore religious unity. Polytheism became practically inconsistent with the Roman empire, and a tendency arose for the introduction of some form of monotheism. Imperialism prepares the way for Monotheism. Apart from the operations of Reason, it is clear that the recognition by so many nations of one emperor must soon be followed by the acknowledgment of one God. There is a disposition for uniformity among people who are associated by a common political bond. Moreover, the rivalries of a hundred priesthoods imparted to polytheism an intrinsic weakness; but monotheism implies centralization, an organized hierarchy, and therefore concentration of power. The different interests and collisions of multitudinous forms of religion sapped individual faith; a diffusion of practical atheism, manifested by a total indifference to all ceremonies, except so far as they were shows, was the result, the whole community falling into an unbelieving and godless state. The form of superstition through which the national mind had passed was essentially founded upon the recognition of an incessant intervention of many divinities determining human affairs; but such a faith became extinct by degrees among the educated. How was it possible that human reason should deal otherwise with all the contradictions and absurdities of a thousand indigenous and imported deities, each asserting his inconsistent pretensions. A god who in his native grove or temple has been paramount and unquestioned, sinks into insignificance when he is brought into a crowd of compeers. In this respect there is no difference between gods and men. Great cities are great levelers of both. He who has stood forth in undue proportions in the solitude of the country, sinks out of observation in the solitude of a crowd.

The most superficial statement of philosophy among the Romans, if philosophy it can be called, shows us how completely religious sentiment was effaced. Roman philosophy. The presence of skeptical thought is seen in the explanations of Terentius Varro, B.C. 110, that the anthropomorphic gods are to be received as mere emblems of the forces of matter; and the general tendency of the times may be gathered from Varro, *Lucretius*, the poem of Lucretius: his recommendations that the mind should be emancipated from the fear of the gods; his insinuations against the immortality of the soul; his setting forth Nature as the only God to be worshiped. In Cicero we see how feeble and wavering a

guide to life in a period of trouble philosophy had become, and how one who wished to stand in the attitude of chief thinker of his times was no more than a servile copyist of Grecian predecessors, giving to his works not an air of masculine and independent thought, but aiming at Cicero's present effect rather than a solid durability; for Cicero addresses himself more to the public than to philosophers, exhibiting herein his professional tendency as an advocate. Under a thin veil he hides an undisguised skepticism, and, with the instinct of a placeman, leans rather to the investigation of public concerns than to the profound and abstract topics of philosophy. As is the case with superficial men, he sees no difference between the speculative and the exact, confusing them together. He feels that it is inexpedient to communicate truth publicly, especially that of a religious kind. Doubtless herein we shall agree when we find that he believes God to be nothing more than the soul of the world; discovers many serious objections to the doctrine of Providence; insinuates that the gods are only poetical creations; is uncertain whether the soul is immortal, but is clear that the popular doctrine of punishment in the world to come is only an idle fable.

It was the attribute of the Romans to impress upon every thing a practical character. In their philosophy we continually see this displayed, along with a striking inferiority in original thought. ^{Quintus Sextus.} Quintus Sextius admonishes us to pursue a virtuous life, and, ^{Seneca.} as an aid thereto, enjoins an abstinence from meat. In this opinion many of the Cynical school acquiesced, and some, it is said, even joined the Brahmins. In the troublous times of the first Caesars, men had occasion to derive all the support they could from philosophy; there was no religion to sustain them. Among the Stoics there were some, as Seneca, to whom we can look back with pleasure. Through his writings he exercised a considerable influence on subsequent ages, though, when we attentively read his works, we must attribute this not so much to their intrinsic value as to their happening to coincide with the prevalent tone of religious thought. He enforces the necessity of a cultivation of good morals, and yet he writes against the religion of his country, its observances, and requirements. Of a far higher grade was Epictetus, at once a slave and a philosopher, though scarcely to ^{Epictetus. Antoninus.} be classed as a true Stoic. He considers man as a mere spectator of God and his works, and teaches that every one who can no longer bear the miseries of life is, upon just deliberation, and a conscientious belief that the gods will not disapprove, free to commit suicide. His maxim is that all have a part to play, and he has done well who has done his best—that he must look to conscience as his guide. If Seneca said that time alone is our absolute and only possession, and that nothing else belongs to man, Epictetus taught that his thoughts are all that man has any power over, every thing else being beyond his control.

also understood. *Constantine*, the emperor, did not hesitate to acknowledge domestic homage to Epictetus, the slave, in his attempt to guide his life according to the principles of the Stoics. He recommends every man to deliver his demon free from sin, and prefers religious devotions to the researches of physics, in this departing to some extent from the original doctrines of the sect; but the evil times on which men had fallen led them to seek support in religious consolations rather than in philosophical inquiries. In Maximus Tyrius, A.D. 146, we discover a corresponding sentiment, enveloped, it is true, in an air of Platonism, and countenancing an impression that the worship of images and sanctuaries are unnecessary for those who have a lively remembrance of the view they once enjoyed of the divine, though excellent for the vulgar, who have forgotten their past. Alexander of Aphrodisias exhibits the tendency, which was becoming very prevalent, to combine Plato and Aristotle. He treats upon Providence, both absolute and contingent; considers its bearings upon religion, and shows a disposition to cultivate the pious feelings of the age.

Of Galen, the physician, I shall have to speak subsequently. It is *enough* sufficient to remark that he asserts experience to be the only source of knowledge; lays great stress on the culture of mathematics and logic, observing that he himself should have been a Pyrrhonist had it not been for geometry. In the teleological doctrine of physiology he considers that the foundations of a true theology must be laid. The physicians of the times exerted no little influence on the promotion of such views; for the most part they embraced the Pantheistic doctrine. As one of them, Sextus Empiricus may be mentioned; his works, still remaining, indicate to us the tendency of this school to materialism.

Such was the tone of thought among the cultivated Romans; and to this philosophical atheism among them was added an atheism of indifference among the vulgar. But, since man is so constituted that he can not live for any length of time without a form of worship, it is evident that there was great danger, whenever events should be ripe for the appearance of some monotheistic idea, that it might come in a base aspect. At a much later period than that we are here considering, one of the emperors expressed himself to the effect that it would be necessary to give liberty for the exercise of a sound philosophy among the higher classes, and provide a gorgeous ceremonial for the lower; he saw how difficult it is, by mere statesmanship, to co-ordinate two such requirements, in their very nature contradictory. Though polytheism had lost all intellectual strength, the nations who had so recently parted with it could not be expected to have ceased from all disposition to an animalization of religion and corporealization of God. In a certain sense the emperor was only a more remote and more majestic monarch than the conquered and vanished kings, but, like them,

Philosophical atheism among the educated.

he was a man. There was danger that the theological system, thus changing with the political, would yield only expanded anthropomorphic conceptions.

History perpetually demonstrates that nations can not be permanently modified except by principles or actions conspiring with their existing tendency. Violence perpetrated upon them may pass away, leaving, perhaps, in a few generations, no vestige of itself. Even Victory is conquered by Time. Profound changes alone ensue when the operating force is in unison with the temper of the age. International peace among so many people once in conflict—peace under the auspices of a great overshadowing power; the unity of sentiment and brotherhood of feeling fast finding its way round the Mediterranean shores; the interests of a vast growing commerce, unfettered through the absorption of so many little kingdoms into one great republic, were silently bringing things to a condition that political force could be given to any religious dogma founded upon sentiments of mutual regard and interest. Nor could it be otherwise than that among the great soldiers of those times one would at last arise whose practical intellect would discover the personal advantages that must accrue from putting himself in relation with the universally prevailing idea. How could he better find adherents from the centre to the remotest corner of the empire? And, even if his own personal intellectual state should disable him from accepting in its fullness the special form in which the idea had become embodied, could there be any doubt, if he received it, and was true to it as a politician, though he might decline it as a man, of the immense power it would yield him in return—a power sufficient, if the metropolis should resist, or be otherwise unsuited to his designs, to enable him to found a rival to her in a more congenial place, and leave her to herself, the skeleton of so much glory and of so much guilt.

Thus, after the event, we can plainly see that the final blow to Polytheism was the suppression of the ancient independent nationalities round the Mediterranean Sea; and that, in like manner, Monotheism was the result of the establishment of an imperial government in Rome. But the great statesmen of those times, who were at the general point of view, must have foreseen that, in whatever form the expected change came, its limits of definition would inevitably be those of the empire itself, and that wherever the language of Rome was understood the religion of Rome would prevail. In the course of ages, an expansion beyond those limits might ensue wherever the state of things was congenial. On the south, beyond the mere verge of Africa, nothing was to be hoped for—it is the country in which man lives in degradation and is happy. On the east there were great unsubdued and untouched monarchies, having their own types of

Principles, to be effective, must coincide with existing tendencies.

The coming Monotheism must be bounded by the limits of Roman influence.

civilization, and experiencing no want in a religious respect. But on the north there were nations who, though they were plunged in hideous barbarism, filthy in an equal degree in body and mind, polygamists, idolaters, drunkards out of their enemies' skulls, were yet capable of an illustrious career. For these there was a glorious participation in store.

Except the death of a nation, there is no event in human history more profoundly solemn than the passing away of an ancient religion, though religious ideas are transitory, and creeds succeed one another with a periodicity determined by the law of continuous variation of human thought. The intellectual epoch at which we have now arrived has for its essential characteristic such a succession of change—the abandonment of a time-honored but obsolete system, the acceptance of a new and living one; and, in the incipient stages, opinion succeeding opinion in a well-marked way, until at length, after a few centuries of fusion and solution, there crystallized on the remnant of Roman power, as on a nucleus, a definite form, which, slowly modifying itself into the Papacy, served the purposes of Europe for more than a thousand years throughout its age of Faith.

In this abandonment, the personal conduct of the educated classes very powerfully assisted. They outwardly conformed to the ceremonial of the times, reserving their higher doctrines to themselves, as something beyond vulgar comprehension. Considering themselves as an intellectual aristocracy, they stood aloof, and, with an ill-concealed smile, consented to the transparent folly around them. It had come to an evil state when authors like Polybius and Strabo apologized to their compeers for the traditions and legends they ostensibly accepted, on the ground that it is inconvenient and needless to give popular offense, and that those who are children in understanding must, like those who are children in age, be kept in order by bugbears. It had come to an evil state when the awful ceremonial of former times had degenerated into a pageant, played off by an infidel priesthood and unbelieving aristocracy; when oracles were becoming mute, because they could no longer withstand the sly wit of the initiated; when the miracles of the ancients were regarded as mere lies, and of contemporaries as feats of legerdemain. It had come to an evil pass when even statesmen received it as a maxim that "when the people have advanced in intellectual culture to a certain point, the sacerdotal class must either deceive them, or oppress them, if it means to keep its power."

In Rome, at the time of Augustus, the intellectual classes—philosophers and statesmen—had completely emerged from the ancient modes of thought. To them, legends, so jealously guarded by the people, were mere fictions. The miraculous event attributed to the god Mars, an event from

The new ideas
coalesce with
the old.

Conduct of the Ro-
man educated men
at this period.

Religious condition
of the intellectual
classes in Rome.

which their ancestors had deduced with pride the celestial origin of the founder of their city, had dwindled into a myth; as a source of actual reliance and trust, the intercession of Venus, that emblem of female loveliness, with the father of the gods in behalf of her human favorites, was abandoned; the Sibylline books, once believed to contain all that was necessary for the prosperity of the republic, were suspected of an origin more sinister than celestial; nor were insinuations wanting that from time to time they had been tampered with to suit the expediency of passing interests, or even that the true ones were lost and forgeries put in their stead. The Greek mythology was to them, as it is to us, an object of reverence, not because of any inherent truth, but for the sake of the exquisite embodiments it can yield in poetry, in painting, in marble. The existence of those illustrious men who, on account of their useful lives or excellent example, had, by the pious ages of old, been sanctified or even deified, was denied, or, if admitted, they were regarded as the exaggerations of dark and barbarous times. It was thus with Æsculapius, Bacchus, and Hercules. And as to the various forms of worship, the multitude of sects into which the pagan nations were broken up offered themselves as a spectacle of imbecile and inconsistent devotion altogether unworthy of attention, except so far as they might be of use to the interests of the state.

Such was the position of things among the educated. In one sense they had passed into liberty, in another they were in bondage. Their indisposition to encounter those inflictions with which their ^{Their irresolution.} illiterate contemporaries might visit them may seem to us surprising: they acted as if they thought that the public was a wild beast that would bite if awakened too abruptly from its dream; but their pusillanimity, at the most, could only postpone for a little an inevitable day. The ignorant classes, whom they had so much feared, awoke spontaneously in due season, and saw in the clear light how matters stood.

Of the Roman emperors there were some whose intellectual endowments were of the highest kind; yet, though it must have been plain to them, as to all who turned their attention to the matter, in what direction society was drifting, they let things take their course, and no one lifted a finger to guide. It may be said that the genius of ^{Surrender of affairs to the illiterate classes,} Rome manifested itself rather in physical than in intellectual operations; but in her best days it was never the genius of Rome to abandon great events to freedmen, eunuchs, and slaves. By such it was that the ancient gods were politically cast aside, while the government was speciously yielding a simulated obedience to them, and hence it was not at all surprising that, soon after the introduction of Christianity, its pure doctrines were debased by a commingling with ceremonies of the departing creed. It was not to be expected that the popular mind could spontaneously extricate itself from the vicious circle in

which it was involved. Nothing but philosophy was competent to deliver it, and philosophy failed of its duty at the critical moment. The classical scholar need scarcely express his surprise that the *Feriae Augusti* were continued in the Church as the Festival St. Petri in vincula; that even to our own times an image of the holy

and consequent
debasement of
Christianity in
Rome.

Virgin was carried to the river in the same manner as in the old times was that of Cybele, and that many pagan rites still continue to be observed in Rome. Had it been in such incidental particulars only that the vestiges of paganism were preserved, the thing would have been of little moment; but, as all who have examined the subject very well know, the evil was far more general and far more profound. When it was announced to the Ephesians that the Council of that place, headed by Cyril, had decreed that the Virgin should be called "the Mother of God," with tears of joy they embraced the knees of their bishop; it was the old instinct peeping out; their ancestors would have done the same for Diana. If Trajan, after ten centuries, could have revisited Rome, he would, without difficulty, have recognized the drama, though the actors and scenery had all changed; he would have reflected how great a mistake had been committed in the legislation of his reign, and how much better it is, when the intellectual basis of a religion is gone, for a wise government to abstain from all compulsion in behalf of what has become untenable, and to throw itself into the new movement so as to shape the career by assuming the lead. Philosophy is useless when misapplied in support of things which common sense has begun to reject; she shares in the discredit which is attaching to them. The opportunity of rendering herself of service to humanity once lost, ages may elapse before it recurs again. Ignorance and low interests seize the moment, and fasten a burden on man which the struggles of a thousand years may not suffice to cast off. Of all the duties of an enlightened government, this of allying itself with Philosophy in the critical moment in which society is passing through so serious a metamorphosis of its opinions as is involved in the casting off of its ancient investiture of Faith, and its assumption of a new one, is the most important, for it stands connected with things that outlast all temporal concerns.

CHAPTER IX.

THE EUROPEAN AGE OF INQUIRY.

THE PROGRESSIVE VARIATION OF OPINIONS CLOSED BY THE INSTITUTION OF COUNCILS AND
THE CONCENTRATION OF POWER IN A PONTIFF.

RISE, EARLY VARIATIONS, CONFLICTS, AND FINAL ESTABLISHMENT OF CHRISTIANITY.

Rise of Christianity.—Distinguished from ecclesiastical Organization.—It is demanded by the deplorable Condition of the Empire.—Its brief Conflict with Paganism.—Character of its first Organization.—Variations of Thought and Rise of Sects: their essential Difference in the East and West.—The three primitive Forms of Christianity: the Judaic Form, its End—the Gnostic Form, its End—the African Form, continues.

Spread of Christianity from Syria.—Its Antagonism to Imperialism; their Conflicts.—Position of Affairs under Dioclesian.—The Policy of Constantine.—He avails himself of the Christian Party, and through it attains supreme Power.—His personal Relations to it.

The Trinitarian Controversy.—Story of Arius.—The Council of Nicea.

The Progress of the Bishop of Rome to Supremacy.—The Roman Church; its primitive subordinate Position.—Causes of its increasing Wealth, Influence, and Corruptions.—Stages of its Advancement through the Pelagian, Nestorian, and Eutychian Disputes.—Rivalry of the Bishops of Constantinople, Alexandria, and Rome.

Necessity of a Pontiff in the West and ecclesiastical Councils in the East.—Nature of those Councils and of pontifical Power.

The Period closes at the Capture and Sack of Rome by Alaric.—Defense of that Event by St. Augustine.—Criticism on his Writings.

Character of the Progress of Thought through this Period.—Destiny of the three great Bishops.

FROM the decay of Polytheism and the decline of philosophy, from the moral and social disorganization of the Roman empire, I have now to turn to the most important of all events, the rise of Christianity. I have to show how a variation of opinion proceeded and reached its culmination; how it was closed by the establishment of a criterion of truth, under the form of ecclesiastical councils, and a system developed which supplied the intellectual wants of Europe for nearly a thousand years.

The reader, to whom I have thus offered a representation of the state of Roman affairs, must now prepare to look at the consequences thereof. Together we must trace out the progress of Christianity, examine the adaptation of its cardinal principles to the wants of the empire, and the variations it exhibited—a task supremely difficult, for even sincerity and truth will sometimes offend. For my part, it is my intention to speak with veneration on this great topic, and yet with liberty, for freedom of thought and expression is to me the first of all earthly things.

Subject of the chapter.

Introduction to the study of Christianity.

But, that I may not be misunderstood, I here, at the outset, emphatically distinguish between Christianity and ecclesiastical organizations. The former is the gift of God; the latter are the product of human exigencies and human invention, and therefore open to criticism, or, if need be, to condemnation.

Distinction between Christianity and ecclesiastical organizations.

From the condition of the Roman empire may be indicated the principles of any new system adapted to its amelioration. In the reign of Augustus, violence paused only because it had finished its work. Faith was dead; morality had disappeared. Around the shores of the Mediterranean the conquered nations looked at one another—partakers of a common misfortune, associates in a common lot. Not one of them had found a god to help her in her day of need. Europe, Asia, and Africa were tranquil, but it was the silence of despair.

Moral state of the world at this period.

Rome never considered man as an individual, but only as a thing. Her way to political greatness was pursued utterly regardless of human suffering. If advantages accrued to the conquered under her dominion, they arose altogether from incident, and never from her purposed intent. She was no self-conscious, deliberate civilizer. Conquest and rapine, the uniform aim of her actions, never permitted her, even at her utmost intellectual development, to comprehend the equal rights of all men in the eye of the law. Unpitied in her stern policy, few were the occasions when, for high state reasons, she stayed her uplifted hand. She might, in the wantonness of her power, stoop to mercy; she never rose to benevolence.

Unpitied tyranny of Rome.

When Syria was paying one third of its annual produce in taxes, is it surprising that the Jewish peasant sighed for a deliverer, and eagerly listened to the traditions of his nation that a temporal Messiah, "a king of the Jews" would soon come? When there was announced the equality of all men before God, "who maketh the sun to shine on the good and the evil, and sendeth his rain on the just and the unjust," is it surprising that men looked for equal rights before the law? Universal equality means universal benevolence; it substitutes for the impersonal and easily-eluded commands of the state the dictates of an ever-present conscience; it accepts the injunction, "Do unto others as you would they should do to you."

Prepares the way for the recognition of the equality of all men.

In the spread of a doctrine two things are concerned—its own intrinsic nature, and the condition of him on whom it is intended to act. The spread of Christianity is not difficult to be understood. Its antagonist, Paganism, presented inherent weakness, infidelity, and a cheerless prospect; a system, if that can be called so, which had no ruling idea, no principles, no organization; caring nothing for proselytes; its rival pontiffs devoted to many gods, but forming no political combination; occupying themselves with directing public worship and foretelling future events, but not interfering in domestic life; giving itself no

Attitude of Paganism.

concern for the lowly and unfortunate; not recognizing, or, at the best, doubtfully admitting a future life; limiting the hopes and destiny of man to this world; teaching that temporal prosperity may be selfishly gained at any cost, and looking to suicide as the relief of the brave from misfortune.

On the other side was Christianity, with its enthusiasm and burning faith; its rewards in this life, and everlasting happiness or damnation in the next; the precise doctrines it by degrees gathered of sin, repentance, pardon; the efficacy of the blood of the Son of God; its ^{Attitude of Christianity.} proselyting spirit; its vivid dogmas of a resurrection from the dead, the approaching end of the world, the judgment-day. Above all, in a worldly point of view, the incomparable organization it soon attained, and its preaching in season and out of season. To the needy Christian the charities of the faithful were freely given; to the desolate, sympathy. In every congregation there were prayers to God that he would listen to the sighing of the prisoner and captive, and have mercy on those who were ready to die. For the slave and his master there was one law and one hope, one baptism, one Savior, one Judge. In times of domestic bereavement the Christian slave doubtless often consoled his pagan mistress with the suggestion that our present separations are only for a little while, and revealed to her willing ear that there is another world—a land in which we rejoin our dead. How is it possible to arrest the spread of a faith which can make the broken heart leap with joy?

At its first organization Christianity embodied itself in a form of communism, the merging of the property of the disciples into a common stock, from which the necessary provision for the needy was made. Such a system, carried out rigorously, is, however, only suited ^{Its first organization.} to small numbers and a brief period. In its very nature it is impracticable on the great scale. Scarcely had it been resorted to before such troubles as that connected with the question of the Hebrew and Greek widows showed that it must be modified. By this relief or maintenance out of the funds of the Church, the spread of the faith among the humbler classes was greatly facilitated. In warm climates, where the necessities of life are small, an apparently insignificant sum will accomplish much in this way. But, as wealth accumulated, besides this inducement for the poor, there were temptations for the ambitious: luxurious appointments and a splendid maintenance, the ecclesiastical dignitaries becoming more than rivals for those of the state.

From the modification which the primitive organization thus underwent, we may draw the instructive conclusion that the special forms of embodiment which the Christian principle from time to time has assumed, and of which many might be mentioned, were, in reality, of only secondary importance. The sects of the early ^{Gradual sectarian divergences.}

ages have so totally died away that we hardly recall the meaning of their names, or determine their essential dogmas. From fasting, penance, and the gift of money, things which are of precise measurement, and therefore well suited to intellectual infancy, there may be perceived an advancing orthodoxy up to the highest metaphysical ideas. Yet it must not be supposed that new observances and doctrines, as they emerged, were the disconnected inventions of ambitious men. If rightly considered, they are, in the aggregate, the product of the uniform progression of human opinions.

Those authors who have treated of the sects of earlier times will point out to the curious reader how, in the beginning, the Church was agitated by a lingering attachment to the Hebrew rites, and with difficulty tore itself away from Judaism, which for the first ten years was paramount in it; how then, for several centuries, it became engrossed with disputes respecting the nature of Christ, and creed after creed arose therefrom; to the Ebionites he was a mere man; to the Docetes, a phantasm; to the Jewish Gnostic, Cerinthus, possessed of a twofold nature; how, after the spread of Christianity, in succeeding ages, all over the empire, the intellectual peculiarities of the East and West were visibly impressed upon it—the East filled with speculative doctrines, of which the most important were those brought forward by the Platonists of Alexandria, for the Platonists, of all philosophical sects, furnished most converts; the West, in accordance with its utilitarian genius, which esteems the practical and disparages the intellectual, singularly aided by propitious opportunity, occupying itself with material aggrandizement and territorial power. The vanishing point of all Christian sectarian ideas of the East was in God, of those of the West in Man. Herein consists the essential difference between them. The one was rich in doctrines respecting the nature of the Divinity, the other abounded in regulations for the improvement and consolation of Humanity. For long there was a tolerance, and even liberality toward differences of opinion. Until the Council of Nicea, no one was accounted a heretic if only he professed his belief in the Apostles' Creed.

A very astute ecclesiastical historian, referring to the early contaminations of Christianity, makes this remark: "A clear and unpolluted fountain, fed by secret channels with the dew of Heaven, when it grows a large river, and takes a long and winding course, receives a tincture from the various soils through which it passes."

Thus influenced by surrounding circumstances, the primitive modifications of Christianity were three—Judaic Christianity, Gnostic Christianity, African Christianity.

Of these, the first consisted of contaminations from Judaism, from

which true Christianity disentangled itself with extreme difficulty, at the cost of dissensions among the apostles themselves. From the purely Hebrew point of view of the early disciples, who surrendered with reluctance their expectation that the Savior was the long-looked-for temporal Messiah, the King of the Jews, under which name he suffered, the faith gradually expanded, including successively proselytes of the Gate, the surrounding Gentiles, and at last the whole world, irrespective of nation, climate, or color. With this truly imperial extension, there came into view the essential doctrines on which it was based. But Judaic Christianity, properly speaking, soon came to an untimely end. It was unable to maintain itself against the powerful apostolic influences in the bosom of the Church, and the violent pressure exerted by the unbelieving Jews, who exhibited toward it an inflexible hatred. Moreover, the rapid advance of the new doctrines through Asia Minor and Greece offered a tempting field for enthusiasm. The first preachers in the Roman empire were Jews; for the first years circumcision and conformity to the law of Moses were insisted on; but the first council determined that point, at Jerusalem, probably about A.D. 49, in the negative. The organization of the Church, originally modeled upon that of the Synagogue, was changed. In the beginning the creed and the rites were simple; it was only necessary to profess belief in the Lord Jesus Christ, and baptism marked the admission of the convert into the community of the faithful. James, called the brother of our Lord, as might, from his relationship, be expected, occupied the position of headship in the Church. The names of the bishops of the Church of Jerusalem, as given by Eusebius, succeed to James, the brother of Christ, in the following order: Simeon, Justus, Zaccheus, Tobias, Benjamin, John, Matthew, Philip, Simeon, Justus, Levi, Ephraim, Joseph, and Judas. The names are indicative of the nationality. It was the boast of this Church that it was not corrupted with any heresy until the last Jewish bishop, a boast which must be received with some limitation, for very early we find traces of two distinct parties in Jerusalem—those who received the account of the miraculous conception and those who did not. The Ebionites, who were desirous of tracing our Savior's lineage up to David, did so according to the genealogy given in the Gospel of St. Matthew, and therefore they would not accept what was said respecting the miraculous conception, affirming that it was apocryphal, and in obvious contradiction to the genealogy in which our Savior's line was traced up through Joseph, who, it would thus appear, was not his father. They are to be considered as the national or patriotic party.

Two causes seem to have been concerned in arresting the spread of conversion among the Jews: the first was their disappointment as respects the temporal power of the Messiah; the sec-

Judaic Christianity.

Causes of the arrest of Jewish conversion.

ond, the prominence eventually given to the doctrine of the Trinity. Their jealousy of any thing that might touch the national doctrine of the unity of God became almost a fanaticism. Judaic Christianity may be said to have virtually ended with the destruction of Jerusalem by the Romans; its last trace, however, was the dispute respecting Easter, which was terminated by the Council of Nicea. The conversion of the Jews had ceased before the reign of Constantine.

The second form, Gnostic Christianity, had reached its full development within a century after the death of Christ; it maintained an active influence through the first four centuries, and gave birth, during that time, to many different subordinate sects. It consisted essentially in ingrafting Christianity upon Magianism. It made the Savior an emanated intelligence, derived from the eternal, self-existing mind; this intelligence, and not the Man-Jesus, was the Christ, who thus, being an impassive phantom, afforded to Gnosticism no idea of an expiatory sacrifice, none of an atonement. It was arrested by the reappearance of pure Magianism in the Persian empire under Ardeschir Babegan; not, however, without communicating to orthodox Christianity an impression far more profound than is commonly supposed, and of which indelible traces may be perceived in our day.

The third form, African or Platonic Christianity, arose in Alexandria. Here was the focus of those fatal disputes respecting the Trinity, a word which does not occur in the Holy Scriptures, and which, it appears, had been first introduced by Theophilus, the Bishop of Antioch, the seventh from the apostles. In the time of Hadrian Christianity had become diffused all over Egypt, and had found among the Platonizing philosophers of the metropolis many converts. These men modified the Gnostic idea to suit their own doctrines, asserting that the principle from which the universe originated was something emitted from the supreme mind, and capable of being drawn into it again, as they supposed was the case with a ray and the sun. This ray, they affirmed, was permanently attached to our Savior, and hence he might be considered as God. Thus, therefore, there were in his person three parts, a body, a soul, and the logos; hence he was both God and man. But, as a ray is inferior to the sun, it seemed to follow that the Christ must be inferior to the Father.

In all this it is evident that there is something transcendental, and the Platonizing Christians, following the habit of the Greek philosophers, considered it as a mysterious doctrine; they spoke of it as "meat for strong men," but the popular current doctrine was "milk for babes." Justin Martyr, A.D. 132, who had been a Platonic philosopher, believed that the divine ray, after it was attached to Christ, was never withdrawn from him, or ever separated from its source. He offers two illustrations of his idea. As speech (logos), going forth from one man,

enters into another, conveying to him meaning, while the same meaning remains in the person who speaks, thus the logos of the Father continues unimpaired in himself, though imparted to the Christ; or, as from one lamp another may be lighted without any loss of splendor, so the divinity of the Father is transferred to the Son. This last illustration subsequently became very popular, and was adopted into the Nicene Creed. "God of God, Light of Light."

It is obvious that the intention of this reasoning was to preserve intact the doctrine of the unity of God, for the great body of Christians were at this time monarchists, the word being used in its theological acceptation.

Thus the Jewish and Gnostic forms both died out, but the African, Platonic, or Alexandrian was destined to be perpetuated. The manner in which this occurred can only be understood by a study of the political history of the times. To such facts as are needful for the purpose, I shall therefore with brevity allude.

Permanence of Alexandrian ideas.

From its birthplace in Judea Christianity advanced to the conquest of the Roman world. In its primitive form it received an urgency from the belief that the end of all things was close at hand, and that the earth was on the point of being burnt up by fire.

Spread of Christianity from Syria.

From the civil war it had waged in Judea, it emerged to enter on a war of invasion and foreign annexation. In succession, Cyprus, Phrygia, Galatia, and all Asia Minor, Greece, and Italy, were penetrated. The persecutions of Nero, incident on the burning of Rome, did not for a moment retard its career; during his reign it rapidly spread, and in every direction Petrine and Pauline, or Judaizing and Hellenizing churches were springing up. The latter gained the superiority, and the former passed away. The constitution of the churches changed, the congregations gradually losing power, which became concentrated in the bishop. By the end of the first century the episcopal form was predominant, and the ecclesiastical organization so imposing as to command the attention of the emperors, who now began to discover the mistake that had hitherto been made in confounding the new religion with Judaism. Their dislike to it, soon manifested in measures of repression, was in consequence of the peculiar attitude it assumed. As a body, the Christians not only kept aloof from all the amusements of the times, avoiding theatres and public rejoicings, but in every respect constituted themselves an empire within the empire. Such a state of things was altogether inconsistent with the established government, and its certain inconveniences and evils were not long in making themselves felt. The triumphant march of Christianity was singularly facilitated by free intercommunication over the Mediterranean, in consequence of that sea being in the hands of one sovereign power. The Jewish and Greek merchants afforded it a

Modifications of organization become necessary.

Becomes antagonistic to Imperialism.

medium; their trading towns were its posts. But it is not to be supposed that its spread was without resistance; for at least the first century and a half the small farmers and land laborers entertained a hatred to it, looking upon it as a peculiarity of the trading communities, whom they ever despised. They persuaded themselves that the earthquakes, inundations, and pestilences were attributable to it. To these Persecution consolidates it. incitements was added a desire to seize the property of the faithful confiscated by the law. Of this the early Christians unceasingly and bitterly complained. But the rack, the fire, wild beasts were unavailingly applied. Out of the very persecutions themselves advantages arose. Injustice and barbarity bound the pious but feeble communities together, and repressed internal dissent.

In several instances there can be no doubt, however, that persecution Defiant air of the young churches. was brought on by the defiant air the churches assumed as they gathered strength. To understand this, we have only to peruse such documents as the address of Tertullian to Scapula. Full of intolerant spirit, it accuses the national religion of being the cause of all the public calamities, the floods, the fires, the eclipses; it denounces the vengeance of God on the national idolatry. As was the opinion of the Christians at that time, it acknowledges the reality of the pagan gods, whom it stigmatizes as demons, and proclaims its determination to expel them. It warns its opponents that they may be stricken blind, devoured by worms, or visited with other awful calamities. Such a sentiment of scorn and hatred, gathering force enough to make itself politically felt, was certain to provoke persecution. That of Opposition of the emperors. Decius, A.D. 250, was chiefly aimed against the clergy, not even the bishops of Jerusalem, Antioch, and Rome escaping. Eight years after occurred that in which Sextus, the Bishop of Rome, and Cyprian of Carthage perished.

Under Dioclesian it had become apparent that the self-governed Christian corporations every where arising were altogether incompatible with the imperial system. Position of things under Dioclesian. If tolerated much longer, they would undoubtedly gain such strength as to become politically quite formidable. There was not a town, hardly a village in the empire—nay, what was indeed far more serious, there was not a legion in which these organizations did not exist. The uncompromising and inexorable spirit animating them brought on necessarily a triple alliance of the statesmen, the philosophers, and the polytheists. These three parties, composing or postponing their mutual disputes, cordially united to put down the common enemy before it should be too late. It so fell out that the conflict first broke out in the army. When the engine of power is affected, it behooves a prince to take heed. The Christian soldiers in some of the legions refused to join in the time-honored solemnities for propitiating the gods. It was in the winter A.D. 302-3. The

emergency became so pressing that a council was held by Dioclesian and Galerius to determine what should be done. The difficulty of the position may perhaps be appreciated when it is understood that even the wife and daughter of Dioclesian himself were adherents of the new religion. He was a man of such capacity and enlarged political views that, at the second council of the leading statesmen and generals, he would not have been brought to give his consent to repression if it had not been quite clear that a conflict was unavoidable. His extreme reluctance to act is shown by the express stipulation he made that there should be no sacrifice of life. It is scarcely necessary to relate the events which ensued; how the Church of Nicomedia ^{Imperial persecutions.} was razed to the ground; how an ominous retaliation was exacted by setting fire to the imperial palace; how an edict was openly insulted and torn down; how the Christian officers in the army were compelled to resign; and, as Eusebius, an eye-witness, relates, a vast number of martyrs soon suffered in Armenia, Syria, Mauritania, Egypt, and elsewhere. So resistless was the march of events that not even the emperor himself could stop the persecution. The Christians were given over to torture, the fire, wild beasts, beheading; many of them, in the moment of condemnation, simply returning thanks to God that he had thought them worthy to suffer. The whole world was filled with admiration. The greatness of such holy courage could have no other result. An internecine conflict between the disputants seemed to be inevitable. But, in the dark and bloody policy of the times, the question was settled in an unexpected way. To Constantine, who had fled from the treacherous custody of Galerius, it naturally occurred that, if he should ally himself to the Christian party, conspicuous advantages must forthwith accrue to him. It would give him in every corner of the empire men and women ready to encounter fire ^{Their great political consequences.} and sword; it would give him partisans, not only animated by the traditions of their fathers, but—for human nature will even in the religious assert itself—demanding retribution for the horrible barbarities and injustice that had been inflicted on themselves; it would give him, and this was the most important of all, unwavering adherents in every legion of the army. He took his course. The events of war crowned him with success. He could not be otherwise than outwardly true to those who had given him power, and who ^{Successful policy of Constantine.} continued to maintain him on the throne. But he never conformed to the ceremonial requirements of the Church till the close of his evil life.

The attempt to make an alliance with this great and rapidly growing party was nothing new. Maximin tried it, but was distrusted. Licinius, foreseeing the policy that Constantine would certainly pursue, endeavored to neutralize it by feebly reviving the persecution, A.D. 316, thinking thereby to conciliate the pagans. The aspirants for em-

pire at this moment so divided the strength of the state that, had the Christian party been weaker than it actually was, it so held the balance of power as to be able to give a preponderance to the candidate of its choice. Much more, therefore, was it certain to prevail, considering its numbers, its ramifications, its compactness. As to its strength, force, and argument, and persuasion had alike proved ineffectual against it.

To the reign of Constantine the Great must be referred the commencement of those dark and dismal times which oppressed Europe for a thousand years. It is the true close of the Roman empire, the beginning of the Greek. The transition from one to the other is emphatically and abruptly marked by a new metropolis, a new religion, a new code, and, above all, a new policy. An ambitious man had attained to imperial power by personating the interests of a rapidly growing party. The unavoidable consequences were a union between the Church and State; a diverting of the dangerous classes from civil to ecclesiastical paths, and the decay and materialization of religion. This, and not the reign of Leo the Isaurian, as some have said, is the true beginning of the Byzantine empire; it is also the beginning of the age of Faith in Europe, though I consider the age of Inquiry as overlapping this epoch, and as terminating with the military fall of Rome.

Ecclesiastical authors have made every thing hinge on the conversion of Constantine and the national establishment of Christianity. The medium through which they look distorts the position of objects, and magnifies the subordinate and collateral into the chief. Events had been gradually shaping themselves in such a way that the political fall of the city of Rome was inevitable. The Romans, as a people, had disappeared, being absorbed among other nations; the centre of power was in the army. One after another, the legions put forth competitors for the purple—soldiers of fortune, whose success could never remove low habits due to a base origin, the coarseness of a life of camps—who found no congeniality in the elegance and refinement of those relics of the ancient families which were expiring in Rome. They despised the military decrepitude of the superannuated city; her recollections they hated. To such men the expediency of founding a new capital was an obvious device; or, if indisposed to undertake so laborious a task, the removal of the imperial residence to some other of the great towns was an effectual substitute. It was thus that the residence of Dioclesian at Nicomedia produced such disastrous consequences in a short time to Rome.

After Constantine had murdered his son Crispus, his nephew Licinius, and had suffocated in a steam-bath his wife Fausta, to whom he had been married twenty years, and who was the mother of three of his sons, the public abhorrence of his crimes could no longer be concealed. He resolves on removing the metropolis. He unade, comparing his reign to that of

He resolves on
removing the
metropolis.

Nero, was affixed to the palace gate. The guilty emperor, in the first burst of anger, was on the point of darkening the tragedy, if such a thing was possible, by a massacre of the Roman populace who had thus insulted him. It is said that his brothers were consulted on this measure of vengeance. The result of their council was even more deadly, for it was resolved to degrade Rome to a subordinate rank, and build a metropolis elsewhere.

Political conditions thus at once suggested and rendered possible the translation of the seat of government: the temporary motive was the vengeance of a great criminal. Perhaps, also, in the mental occupation incident to such an undertaking, the emperor found a refuge from the accusations of conscience. But it is altogether erroneous to suppose that either at this time, or for many years subsequently, he was a Christian. His actions are not those of a devout convert; he was no proselyte, but a protector; never guiding himself by religious principles, but now giving the most valuable support to his new allies, now exhibiting the impartiality of a statesman for both forms of faith. In his character of Pontifex Maximus he restored pagan temples, and directed that the haruspices should be consulted. On the festival of the birthday of the new city he honored the statue of Fortune. The continued heathen sacrifices and open temples seemed to indicate that he intended to do no more than place the new religion on a level with the old. His recommendation to the Bishop of Alexandria and to Arius of the example of the philosophers, who never debated profound questions before ignorant audiences, and who could differ without hating one another, illustrates the indifferentism of his personal attitude, and yet he clearly recognized his obligations to the party that had given him power.

This conclusion is confirmed by the works of Constantine himself. They must be regarded as far better authority than the writings of religious polemics. A medal was struck, on which was impressed his title of "God," together with the monogram of Christ. Another represented him as raised by a hand from the sky while seated in the chariot of the Sun. But more particularly the great porphyry pillar, a column 120 feet in height, exhibited the true religious condition of the founder of Constantinople. The statue on its summit mingled together the Sun, the Savior, and the Emperor. Its body was a colossal image of Apollo, whose features were replaced by those of Constantine, and round the head, like rays, were fixed the nails of the cross of Christ recently discovered in Jerusalem.

The position of a patron assumed by Constantine may be remarked in many of the incidents of his policy. The edict of Milan gave liberty both to Pagans and Christians; but his necessity for in some degree showing a preponderance of favor for the latter obliged him to issue a

He is a protector,
but not a convert.

His tendencies
to Paganism.

rescript exempting the clergy from civil offices. It was this also which led him to conciliate the bishops by the donation of large sums of money for the restitution of their churches and other purposes, and to exert himself, often by objectionable means, for destroying that which they who were around him considered to be heresy. A better motive, perhaps, led him to restore those Christians who had been degraded; to surrender to the legal heirs the confiscated estates of martyrs, or, if no heirs were to be found, to convey them to the Church; to set at liberty those who had been condemned to the mines; to recall those who had been banished. If, as a tribute to the Christians, who had sustained him politically, he made the imperial treasury responsible for many of their losses; if he caused costly churches to be built not only in the great cities, but even in the Holy Land; if he vindicated the triumphant position of his supporters by forbidding any Jew to have a Christian slave; if he undertook to enforce the decisions of councils by means of the power of the state; if he forbade all schism in the Church, himself determining the degrees of heresy under the inspirations of his clerical

His relations to the Church.

entourage, his vacillations show how little he was guided by principle, how much by policy. After the case of the Donatists had been settled by repeated councils, he spontaneously recalled them from banishment; after he had denounced Arius as "the very image of the Devil," he, through the influence of court females, received him again into favor; after the temple of Æsculapius at Ægæ had been demolished, and the doors and roofs of others removed, the pagans were half conciliated by perceiving that no steady care was taken to enforce the obnoxious decrees, and that, after all, the Christians would have to accept the intentions of the emperor for deeds.

In a double respect the removal of the seat of empire was important to Christianity. It rendered possible the assumption of power by the bishops of Rome, who were thereby secluded from imperial observation and inspection, and whose position, feeble at first, under such singularly auspicious circumstances was at last developed into papal supremacy. In Constantinople, also, there were no pagan recollections and interests to contend with. At first the new city was essentially Roman, and its language Latin; but this was soon changed for Greek, and thus the transference of the seat of government tended to make Latin in the end a sacred tongue.

Constantine knew very well where Roman power had for many years lain. His own history, from the time of his father's death and his exaltation by the legions at York, had taught him that, for the perpetuation of his dynasty and system, those formidable bodies must be disposed of. It was for this reason, and that no future commander might do what himself and so many of his predecessors had done, that he reduced the strength of the legion from 6000 to 1500 or

The policy of Constantine.

1000 men. For this reason, too, he opened to ambition the less dangerous field of ecclesiastical wealth and dignity, justly concluding that, since the clergy came from every class of society, the whole people would look to the prosperity of the Church. By exempting the priesthood from burdensome municipal offices, such as the decurionate, he put a premium on apostasy from paganism. The interest he personally took in the Trinitarian controversy encouraged the spreading of theological disputation from philosophers and men of capacity to the populace. Under the old polytheism heresy was impossible, since every man might select his god and his worship; but under the new monotheism it was inevitable—heresy, a word that provokes and justifies a black catalogue of crimes. Occupied in those exciting pursuits, men took but little heed of the more important political changes that were in progress. The eyes of the rabble were easily turned from the movements of the government by horse-racing, theatres, largesses. Yet already this diversion of ambition into new fields gave tokens of dangers to the state in future times. The Donatists, whom Constantine had attempted to pacify by the Councils of Rome, Arles, and Milan, maintained a more than religious revolt, and exhibited the bitterness that may be infused among competitors for ecclesiastical spoils. These enthusiasts assumed to themselves the title of God's elect, proclaimed that the only true apostolical succession was in their bishops, and that whosoever denied the right of Donatus to be Bishop of Carthage should be eternally damned. They asked, with a truth that lent force to their demand, "What has the emperor to do with the Church, what have Christians to do with kings, what have bishops to do at court?" Already the Catholic party, in preparation of their commencing atrocities, ominously inquired, "Is the vengeance of God to be defrauded of its victims?" Already Constantine, by bestowing on the Church the right of receiving bequests, had given birth to that power which, reposing on the influence that always attaches to the possession of land, becomes at last overwhelming when it is held by a corporation which may always receive and can never alienate, which is always renewing itself and can never die. It was by no miraculous agency, but simply by its organization, that the Church attained to power; an individual who must die, and a family which must become extinct, had no chance against a corporation whose purposes were ever unchanged, and its life perpetual. But it was not the state alone which thus took detriment from her connection with the Church; the latter paid a full price for the temporal advantages she received in invoking civil intervention in her affairs. After a retrospect of a thousand years, well did the pious Fratricelli loudly proclaim their conviction that the fatal gift of a Christian emperor had been the doom of true religion.

From the rough soldier who accepted the purple at York, how great

the change to the effeminate emperor of the Bosphorus, in silken robes stiffened with threads of gold, with a diadem of sapphires and pearls, and false hair stained of various tints; his steps stealthily guarded by mysterious eunuchs flitting through the palace, and streets full of spies, and an ever-watchful police. The same man who approaches us as the Roman emperor retires from us as the Asiatic despot. In the last days of his life, he put aside the imperial purple, and, assuming the customary white garment, prepared for baptism, that the sins of his long and evil life might all be washed away. Since complete purification can thus be only once obtained, he was desirous to procrastinate that ceremony to the last moment. Profoundly politic, even in his relations with heaven, he thenceforth reclined on a white bed, took no farther part in worldly affairs, and, having thus insured a right to the continuance of that prosperity in a future life which he had enjoyed in this, expired, A.D. 337.

His conversion
and death.

In a theological respect, among the chief events of this emperor's reign are the Trinitarian controversy and the open materialization of Christianity. The former, commencing among the Platonizing ecclesiastics of Alexandria, continued for ages to exert a formidable influence. From time immemorial, as we have already related, the Egyptians had been familiar with various trinities, different ones being worshiped in different cities, the devotees of each exercising a peaceful toleration toward those of others. But now things were greatly changed. It was the settled policy of Constantine to divert ambition from the state to the Church, and to make it not only safer, but more profitable to be a great ecclesiastic than a successful soldier. A violent competition for the chief offices was the consequence—a competition, the prelude of that still greater one for episcopal supremacy.

We are now again brought to a consideration of the variations of opinion which marked this age. It would be impossible to give a description of them all. I therefore propose to speak only of the prominent ones. They are a sufficient guide in our investigation; and of the Trinitarian controversy first.

For some time past dissensions had been springing up in the Church. Even out of persecution itself disunion had arisen. The martyrs who had suffered for their faith, and the confessors who had nobly avowed it, gained a worthy consideration and influence, becoming the intermedium of reconciliation of such of their weaker brethren as had apostatized in times of peril by authoritative recommendations to "the peace of the Church." From this abuses arose. Martyrs were known to have given the use of their names to "a man and his friends;" nay, it was even asserted that tickets of recommendation had been bought for money; and as it was desirable that a uniformity of discipline should obtain in all the churches, so that he who was excom-

Prelude of sectarian dissent.

municated from one should be excommunicated from all, it was necessary that these abuses should be corrected. In the controversies that ensued, Novatus founded his sect on the principle that penitent apostates should, under no circumstances, be ever again received. Besides this dissent on a question of discipline, already there were abundant elements of dispute, such as the time of observance of Easter, the nature of Christ, the millennium upon earth, and rebaptism. Already, in Syria, Noetus, the Unitarian, had foreshadowed what was coming; already there were Patripassians; already Sabellianism existed.

But it was in Alexandria that the tempest burst forth. There lived in that city a presbyter of the name of Arius, who, on occasion of a vacancy occurring, desired to be appointed bishop. But one Alexander supplanted him in the coveted dignity. Both relied on numerous supporters, Arius counting among his not less than seven hundred virgins of the Mareotic nome. In his disappointment he accused his successful antagonist of Sabellianism, and, in retaliation, was anathematized. It was no wonder that, in such an atmosphere, the question quickly assumed a philosophical aspect. The point of difficulty was to define the position of the Son in the Holy Trinity. Arius took the ground that there was a time when, from the very nature of sonship, the Son did not exist, and a time at which he commenced to be, asserting that it is the necessary condition of the filial relation that a son must be posterior in time to his father. But this assertion evidently might imply subordination or inequality among the three persons of the Holy Trinity. The partisans of Alexander raised up their voices against such a blasphemous lowering of the Redeemer; the Arians answered them that, by exalting the Son in every respect to an equality with the Father, they impugned the great truth of the unity of God. The new bishop himself edified the giddy citizens, and perhaps, in some degree, justified his appointment to his place by displaying his rhetorical powers in public debates on the question. The Alexandrians, little anticipating the serious and enduring results soon to arise, amused themselves, with characteristic levity, by theatrical representations of the contest upon the stage. In the theatre of Alexandria many of the corruptions of Christianity originated. The passions of the two parties were roused; the Jews and Pagans, of whom the town was full, exasperated them by their mocking derision. The dissension spread; the whole country became convulsed. In the hot climate of Africa, theological controversy soon ripened into political disturbance. In all Egypt there was not a Christian man, and not a woman, who did not proceed to settle the nature of the unity of God. The tumult rose to such a pitch that it became necessary for the emperor to interfere. Doubtless, at first, he congratulated himself on such a course of events. It was better that the provinces should be

Arius, his
doctrines.

Constantine at-
tempts to check
the controversy;

fanatically engaged in disputes than secretly employed in treason against his person or conspiracies against his policy. A united people is an inconvenience to one in power. Nevertheless, to compose the matter somewhat, he sent Hosius, the Bishop of Cordova, to Alexandria; but, finding that the remedy was altogether inadequate, he was driven at last and summons the Council of Nicea. to the memorable expedient of summoning the Council of Nicea, A.D. 325. It attempted a settlement of the trouble by a condemnation of Arius, and the promulgation of authoritative articles of belief as set forth in the Nicene Creed. As to the main point, the Son was declared to be of the same substance with the Father—a temporizing and convenient, but, as the event proved, a disastrous ambiguity. The Nicene Council, therefore, settled the question by evading it, and the emperor enforced the decision by the banishment of Arius.

"I am persecuted," Arius plaintively said, "because I have taught that the Son had a beginning and the Father had not." It was the influence of the court theologians that had made the emperor his personal enemy. Constantine, as we have seen, had looked upon the The fortunes of Arius. dispute, in the first instance, as altogether frivolous, if he did not, in truth, himself incline to the assertion of Arius, that, in the very nature of the thing, a father must be older than his son. The theatrical exhibitions at Alexandria in mockery of the question were calculated to confirm him in his opinion; his judgment was lost in the theories that were springing up as to the nature of Christ; for on the Ebionitish, Gnostic, and Platonic doctrines, as well as on the new one that "the logos" was made out of nothing, it equally followed that the current opinion must be erroneous, and that there was a time before which the Son did not exist.

But, as the contest spread through churches and even families, Constantine had found himself compelled to intervene. At first he attempted the position of a moderator, but soon took ground against Arius, advised to that course by his entourage at Constantinople. It was at this time that the letter was circulated in which he denounced Arius as the His condemnation as a heretic. image of the Devil. Arius might now have foreseen what must certainly occur at Nicea. Before that council was called every thing was settled. No contemporary for a moment supposed that it was an assembly of simple-hearted men, anxious, by a mutual comparison of thought, to ascertain the truth. Its aim was not to compose such a creed as would give unity to the Church, but one so worded that the Arians would be compelled to refuse to sign it, and so ruin themselves. To the creed was attached an anathema precisely defining the point of dispute, and leaving the foreordained victims no chance of escape. The original Nicene Creed differed in some essential particulars from that now current under that title. Among other things,

the fatal and final clause has been dropped. Thus it ran: "The Holy Catholic and Apostolic Church anathematizes those who say ^{The Nicene Creed.} that there was a time when the Son of God was not; and that before he was begotten he was not, and that he was made out of nothing, or out of another substance or essence, and is created, or changeable, or alterable." The emperor enforced the decision of the council by the civil power; he circulated letters denouncing Arius, and initiated those fearful punishments unhappily destined in future ages to become so frequent, by ordaining that whoever should find a book of Arius and not burn it should actually be put to death.

It might be thought that, after such a decisive course, it would be impossible to change, and yet in less than ten years Constantine is found agreeing with the convict Arius. A presbyter in the confidence of Constantia, the emperor's sister, had wrought upon him. ^{Arius received again into court favor,} Athanasius, now Bishop of Alexandria, the representative of the other party, is deposed and banished. Arius is invited to Constantinople. The emperor orders Alexander, the bishop of that city, to receive him into communion to-morrow. It is Saturday. Alexander flies to the church, and, falling prostrate, prays to God that he will interpose and save his servant from being forced into this sin, even if it should be by death. That same evening Arius was seized with a sudden and violent illness as he passed along the street, and in a few moments he was found dead in a house, whither he had hastened ^{and is poisoned.} In Constantinople, where men were familiar with Asiatic crimes, there was more than a suspicion of poison. But when Alexander's party proclaimed that his prayer had been answered, they forgot what then that prayer must have been, and that the difference is little between praying for the death of a man and compassing it.

The Arians affirmed that it was the intention of Constantine to have called a new council, and have the creed rectified according to his more recent ideas; but, before he could accomplish this, he was overtaken by death. ^{Constantine prepares for a new creed.} So little efficacy was there in the determination of the Council of Nicea, that for many years afterward creed upon creed appeared. What Constantine's new creed would have been may be told from the fact that the Consubstantialists had gone out of power, and from what his son Constantius soon after did at the Council of Ariminum.

So far, therefore, from the Council of Nicea ending the controversies afflicting religion, they continued with increasing fury. ^{Spread of theological disputes.} The sons and successors of Constantine set an example of violence in these disputes; and, until the barbarians burst in upon the empire, the fourth century wore away in theological feuds. Even the populace, scarcely emerged from paganism, set itself up for a judge on questions from their very nature incapable of being solved; and to this

the government gave an impetus by making the profits of public service the reward of sectarian violence. The policy of Constantine began to produce its results. Mental activity and ambition found their true field in ecclesiastical affairs. Orthodoxy triumphed, because it was more in unison with the present necessity of the court, while asserting the predominance of Christianity, to offend as little as might be the pagan party. The heresy of Arius, though it might suit the monotheistic views of the educated, did not commend itself to that large mass who had been so recently pagan. Already the elements of dissension were obvious enough; on one side there was an illiterate, intolerant, unscrupulous, credulous, numerous body, on the other a refined, better-informed, yet doubting sect. The Emperor Constantius, guided by his father's latest principles, having sided with the Arian party, soon found that under the new system a bishop would, without hesitation, oppose his sovereign. Athanasius, the Bishop of Alexandria, as the head of the orthodox party, became the personal antagonist of the emperor, who attempted, after vainly using physical compulsion, to resort to the celestial weapons in vogue by laying claim to Divine inspiration. Like his father, he had a celestial vision; but, as his views were Arian, the orthodox rejected without scruple his supernatural authority, and Hilary of Poitiers wrote a book to prove that he was Antichrist. The horrible bloodshed and murders attending these quarrels in the great cities, and private life of both high and low degree, clearly showed that Christianity, through its union with politics, had fallen into such a state that it could no longer control the passions of men. The personal history of the sons of Constantine is an awful relation of family murders. Religion had disappeared, and theology had come in its stead. Even theology had gone mad. But in the midst of these disputes worldly interests were steadily kept in view. At the Council of Ariminium, A.D. 359, an attempt was made to have the lands belonging to the churches exempt from all taxation; but, to his credit, the emperor steadfastly refused. Macedonius, the Bishop of Constantinople, who had passed over the slaughtered bodies of three thousand people to take possession of his episcopal throne, exceeded even Arius himself in heresy by not only asserting the inferiority of the Son to the Father, but by absolutely denying the divinity of the Holy Ghost.

Athanasius rebels against the emperor.

Steady aggression of the Church and crimes of ecclesiastics.

Two results of these events.

As the fruits of these broils, two facts appear: 1st, that there is a higher law, which the faithful may obey, in opposition to the law of the land, when it suits their views; the law of God, as expounded by the bishop, who can eternally punish the soul, must take precedence of the law of Cæsar, who can only kill the body and seize the goods; 2d, that there is a supremacy in the Bishop of Rome, to whom Athanasius, the leader of the orthodox, by twice visiting that city,

submitted his cause. The significance of these facts becomes conspicuous in later ages. Things were evidently shaping themselves for a trial of strength between the imperial and ecclesiastical powers, heretofore allied. They were about to quarrel over their booty.

We have now to consider this asserted supremacy of the Bishop of Rome, and how it came to be established as a political fact. History of Papal supremacy. We must also turn from the Oriental variations of opinion to those of the West. Except by thus enlarging the field to be traversed, we can gain no perfect conception of the general intellectual tendency.

For long after its introduction to Western Europe, Christianity was essentially a Greek religion. Its Oriental aspect had become Hellenized Christianity. Hellenized. Its churches had, in the first instance, a Greek organization, conducted their worship in that tongue, and composed their writings in it. Though it retained much of this foreign aspect so long as Rome continued to be the residence, or was more particularly under the eye of the emperors, it was gradually being affected by the influences to which it was exposed. On Western Europe, the questions which had so profoundly agitated the East, such as the nature of God, the Trinity, the cause of evil, had made but little impression, the intellectual peculiarity of the people being unsuited to such exercises. The foundation of Constantinople, by taking off the political pressure, permitted native peculiarities to manifest themselves, and Latin Christianity emerged in contradistinction to Greek.

Yet still it can not be said that Europe owes its existing forms of Christianity to a Roman origin. It is indebted to Africa for Modified by Africanism. them. We live under African domination.

I have now with brevity to relate the progress of this interesting event; how African conceptions were firmly established in Rome, and, by the time that Greek Christianity had lost its expansive power and ceased to be aggressive, African Christianity took its place, extending to the North and West, and obtaining for itself an organization copied from that of the Roman empire; sacerdotal prætors, proconsuls, and a Cæsar; developing its own jurisprudence, establishing its own magistracy, exchanging the Greek tongue it had hitherto used for the Latin, which, soon becoming a sacred language, conferred upon it the most singular advantages.

The Greek churches were of the nature of confederated republics; the Latin Church instinctively tended to monarchy. Far from assuming an attitude of conspicuous dignity, the primitive bishops of Rome led a life of obscurity. In the earliest times, the bishops of Jerusalem, of whom James, the brother of our Lord, was the first, are spoken of as the head of the Church, and so regarded even in Rome itself. Subordinate position of the early Roman Church. The controversy respecting Easter, A.D. 109, shows,

however, how soon the disposition for Western supremacy was exhibited, Victor, the Bishop of Rome, requiring the Asiatic bishops to conform to the view of his Church respecting the time at which the festival of Easter should be observed, and being resisted therein by Polycrates, the Bishop of Ephesus, on behalf of the Eastern churches, the feud continuing until the determination of the Council of Nicea. It was not in Asia alone that the growth of Roman supremacy was resisted. There is no difficulty in selecting from ecclesiastical history proofs of the same feeling in many other quarters. Thus, when the disciples of Montanus, the Phrygian, who pretended to be the Paraclete, had converted to their doctrines and austerities the Bishop of Rome, and Tertullian, the Carthaginian, on the former backsliding from that faith, the latter denounced him as a Patripassian heretic. Yet, for the most part, a good understanding obtained not only between Rome and Carthage, but also among the Gallic and Spanish churches, who looked upon Rome as conspicuous and illustrious, though no more than equal to themselves. At the Council of Carthage St. Cyprian said, "None of us ought to set himself up as a bishop of bishops, or pretend tyrannically to restrain his colleagues, because each bishop has a liberty and power to act as he thinks fit, and can no more be judged by another bishop than he can judge another. But we must all wait for the judgment of Jesus Christ, to whom alone belongs the power to set us over the Church, and to judge of our actions."

Rome by degrees emerged from this equality, not by the splendid talents of any illustrious man, for among her early bishops none rose above mediocrity, but partly from her political position, Its gradual increase in wealth and influence, partly from the great wealth she soon accumulated, and partly from the policy she happened to follow. Her bishop was not present at the Council of Nicea, A.D. 325, nor at that of Sardica, A.D. 345; perhaps on these occasions, as on others of a like kind subsequently, the immediate motive of his standing aloof was the fear that he might not receive the presidency. Soon, however, was discerned the advantage of the system of appearing by representatives. Such an attitude, moreover, offered the opportunity of frequently holding the balance of power in the fierce conflicts that soon arose, made Rome a retreat for the discomfited ecclesiastic, and her bishop apparently an elevated and unbiased arbiter on his case. It was thus that Athanasius, in his contests with the emperor, found a refuge and protector. With this elevated position in the esteem of strangers came also domestic dignity. The prodigal gifts of the rich Roman ladies had already made the bishopric to be sought after by those who esteem the ease and luxuries of life as well as by the ambitious. Fierce contests arose on the occurrence of vacancies. At the election of Athanasius, one hundred and thirty of the slain lay in the streets: the competitors had called in the

aid of a rabble of gladiators, charioteers, and other ruffians; nor could the riots be ended except by the intervention of the imperial troops.

It was none too soon that Jerome introduced the monastic system at Rome: there was need of a change to austerity; none too soon that a law against legacy-hunting on the part of the clergy and early cor-
ruptions. was enacted: it had become a public scandal; none too soon that Jerome struggled for the patronage of the rich Roman women; none too soon that this stern fanatic denounced the immorality of the Roman clergy, when even the Bishop Damasus himself was involved in a charge of adultery. It became clear, if the clergy would hold their ground in public estimation against their antagonists the monks, that celibacy must be insisted on. The doctrine of the pre-eminent value of virginity was steadily making progress; but it cost many years of struggle before the monks carried their point, and the celibacy of the clergy was compelled.

It had long been seen by those who hoped for Roman supremacy that there was a necessity for the establishment of a definite Necessity for an
apostolic head. and ascertained doctrine—a necessity for some apostolic man, who might be the representative of a criterion of truth. The Eastern system of deciding by councils was in its nature uncertain. The councils themselves had no ascertained organization. Experience had shown that they were too much under the control of the court at Constantinople.

This tendency to accept the republican decisions of councils in the East, and monarchical ones by a supreme pontiff in the West, Necessity for
Councils or a
pontiff. in reality, however, depended on a common sentiment entertained by reflecting men every where. Something must be done to check the anarchy of opinion.

To show how this tendency was satisfied, it will be sufficient to select, out of the numberless controversies of the times, a few leading ones. A clear light is thrown upon the matter by the history of the Pelagian, Nestorian, and Eutychian heresies. Their chronological period is from about A.D. 400 to A.D. 450.

Pelagius was a British monk, who, about the first of those dates, passed through Western Europe and Northern Africa, teaching the doctrines that Adam was by nature mortal, and that, if he had The Pelagian
controversy. not sinned, he nevertheless would have died; that the consequences of his sin were confined to himself, and did not affect his posterity; that new-born infants are in the same condition as Adam before his fall; that we are at birth as pure as he was; that we sin by our own free will, and in the same manner may reform, and thereby work out our own salvation; that the grace of God is given according to our merits. He was repelled from Africa by the influence of St. Augustine, and denounced in Palestine from the cell of Jerome. He specially insisted on

this, that it is not the mere act of baptizing by water that washes away sin, but that it can only be removed by good works. Infants are baptized before it is possible that they could have sinned. On the contrary, Augustine resisted these doctrines, resting himself on the words of Scripture that baptism is for the remission of sins. The case of children compelled that father to introduce the doctrine of original sin as derived from Adam, notwithstanding the dreadful consequences if they die unbaptized. In like manner also followed the doctrines of predestination, grace, atonement.

Summoned before a synod at Diospolis, Pelagius was unexpectedly acquitted of heresy—an extraordinary decision, which brought Africa and the East into conflict. Under these circumstances, perhaps without a clear foresight of the issue, the matter was referred to Rome as arbiter or judge.

In his decision, Innocent I., magnifying the dignity of the Roman see and the advantage of such a supreme tribunal, determined in favor of the African bishops. But scarcely had he done this when he died, and his successor, Zosimus, annulled his judgment, and declared the opinions of Pelagius to be orthodox. Carthage now put herself in an attitude of resistance. There was danger of a metaphysical or theological Punic war. Meantime the wily Africans quietly procured from the emperor an edict denouncing Pelagius as a heretic. Through the influence of Count Valerius the faith of Europe was settled; the heresiarchs and their accomplices were condemned to exile and forfeiture of their estates; the contested doctrine that Adam was created without any liability to death was established by law; to deny it was a state crime. Thus it appears that the vacillating papacy was not yet strong enough to exalt itself above its equals, and the orthodoxy of Europe was forever determined by an obscure court intrigue.

Scarcely was the Pelagian controversy disposed of when a new heresy appeared. Nestorius, the Bishop of Antioch, attempted to distinguish between the divine and human nature of Christ; he considered that they had become too much confounded, and that "the God" ought to be kept separate from "the Man." From hence it followed that the Virgin Mary should not be regarded as the "mother of God," but only the "mother of Christ—the God-man." Called by the Emperor Theodosius the Younger to the episcopate of Constantinople, A.D. 427, Nestorius was very quickly plunged by the intrigues of a disappointed faction of that city into disputes with the populace.

Let us hear the Bishop of Constantinople himself; he is preaching in the great metropolitan church, setting forth, with all the eloquence of which language is capable, the attributes of the ilimitable, the everlasting, the Almighty God. "And can this God have a mother? The notion of a god born of a mortal mother is

Effect of Pelagianism on papal superiority.

Settlement of the Pelagian question by the Africans.

The Nestorian controversy.

The doctrines of Nestorius.

directly confuted by St. Paul, who declares the Lord to be without father and without mother. Could a creature bear the uncreated?" He thus insisted that what was born of Mary was human, and the divine was added after. At once the monks raised a riot in the city, and Cyril, the Bishop of Alexandria, espoused their cause.

Beneath the outraged orthodoxy of Cyril lay an ill-concealed motive, the desire of the Bishop of Alexandria to humble the Bishop of Constantinople. The uproar commenced with sermons, epistles, addresses. Instigated by the monks of Alexandria, the monks of Constantinople took up arms in behalf of "the mother of God." Again we remark the eminent position of Rome. Both parties turn to her as an arbiter. Pope Celestine assembles a synod. The Bishop of Constantinople is ordered by the Bishop of Rome to recant, or hold himself under excommunication. Italian supremacy is emerging through Oriental disputes, yet not without a struggle. Relying on his influence at court, Nestorius resists, excommunicates Cyril, and the emperor summons a council to meet at Ephesus.

To that council Nestorius repaired, with sixteen bishops and some of the city populace. Cyril collected fifty, together with a rabble of sailors, bath-men, and women of the baser sort. The imperial commissioner with his troops with difficulty repressed the tumult of the assembly. The rescript was fraudulently read before the arrival of the Syrian bishops. In one day the matter was completed; the Virgin's party triumphed, and Nestorius was deposed. On the arrival of the Syrian ecclesiastics, a meeting of protest was held by them. A riot, with much bloodshed, occurred in the Cathedral of St. John. The emperor was again compelled to interfere; he ordered eight deputies from each party to meet him at Chalcedon. In the mean time court intrigues decided the matter. The emperor's sister was in after times celebrated by the party of Cyril as having been the cause of the discomfiture of Nestorius: "the Holy Virgin of the court of Heaven had found an ally of her own sex in the holy virgin of the emperor's court." But there were also other very efficient auxiliaries. In the treasury of the chief eunuch, which some time after there was occasion to open, was discovered an acknowledgment of many pounds of gold received by him from Cyril, through Paul, his sister's son. Nestorius was abandoned by the court, and eventually exiled to an Egyptian oasis. An edifying legend relates that his blasphemous tongue was devoured by worms, and that from the heats of an Egyptian desert he escaped only into the hotter torments of Hell.

So, again, in the affair of Nestorius as in that of Pelagius, Africa triumphed, and the supremacy of Rome, her ally or confederate, was becoming more and more distinct.

A very important result in this gradual evolution of Roman suprem-

Overthrow of
Nestorianism
by the Afri-
cana.

Worship of the
Virgin Mary.

acy arose from the affair of Eutyches, the Archimandrite of a convent of monks at Constantinople. He had distinguished himself as a leader in the riots occurring at the time of Nestorius and in other subsequent troubles. Accused before a synod held in Constantinople of denying the two natures of Christ, of saying that if there be two natures there must be two Sons, Eutyches was convicted, and sentence of excommunication passed upon him. This was, however, only the ostensible cause of his condemnation; the true motive was connected with a court intrigue. The chief eunuch, who was his godson, was occupied in a double movement to elevate Eutyches to the see of Constantinople, and to destroy the authority of Pulcheria, the emperor's sister, through Eudocia, the emperor's wife. On his condemnation, Eutyches appealed to the emperor, who summoned, at the instigation of the eunuch, a council to meet at Ephesus. This was the celebrated "Robber Synod," as it was called. It pronounced in favor of the orthodoxy of Eutyches, and ordered his restoration, deposing the Bishop of Constantinople, Flavianus, who was his rival, and at the synod had been his judge, and also Eusebius, who had been his accuser. A riot ensued, in which the Bishop of Constantinople was murdered by the Bishop of Alexandria and one Barsumas, who beat him with their fists amid cries of "Kill him! kill him!" The Italian legates made their escape from the uproar with difficulty.

The success of these movements was mainly due to Dioscorus, the Bishop of Alexandria, who thus accomplished the overthrow of his rivals of Antioch and Constantinople. An imperial edict gave force to the determination of the council. At this point the Bishop of Rome intervened, refusing to acknowledge the proceedings. It was well that Alexandria and Constantinople should be perpetually struggling, but it was not well that either should become paramount. Dioscorus thereupon broke off communion with him. Rome and Alexandria were at issue.

In a fortunate moment the emperor died; his sister, the orthodox Pulcheria, the friend of Leo, married Marcian, and made him emperor. A council was summoned at Chalcedon. Leo wished it to be in Italy, where no one could have disputed his presidency. As it was, he fell back on the ancient policy, and appeared by representatives. Dioscorus was overthrown, and sentence pronounced against him, in behalf of the council, by one of the representatives of Leo. It set forth that "Leo, therefore, by their voice, and with the authority of the council, in the name of the Apostle Peter, the Rock and foundation of the Church, deposes Dioscorus from his episcopal dignity, and excludes him from all Christian rites and privileges."

But, perhaps that no permanent advantage might accrue to Rome

The Eutychian controversy.

Another advance of Rome to power through Eutychianism.

from the eminent position she was attaining in these transactions, when most of the prelates had left the council, a few, who were chiefly of the diocese of Constantinople, passed, among other canons, one The rivalry of Constantinople. to the effect that the supremacy of the Roman see was not in right of its descent from St. Peter, but because it was the bishopric of an imperial city. It assigned, therefore, to the Bishop of Constantinople equal civil dignity and ecclesiastical authority. Rome ever refused to recognize the validity of this canon.

In these contests of Rome, Constantinople, and Alexandria for supremacy—for, after all, they were nothing more than the rivalries of ambitious placemen for power—the Roman bishop uniformly came forth the gainer. And it is to be remarked that he deserved to Rivalries of the three great bishops. be so; his course was always dignified, often noble; theirs exhibited a reckless scramble for influence, an unscrupulous resort to bribery, court intrigue, murder.

Thus the want of a criterion of truth, and a determination to arrest a spirit of inquiry that had become troublesome, led to the introduction of councils, by which, in an authoritative manner, theological questions might be settled. But it is to be observed that these councils did not accredit themselves by the coincidences of their decisions on successive occasions, since they often contradicted one another, nor Nature of ecclesiastical councils. did they sustain those decisions only with a moral influence arising from the understanding of man, enlightened by their investigations and conclusions. Their human character is clearly shown by the necessity under which they labored of enforcing their arbitrary conclusions by the support of the civil power. The same necessity which, in the monarchical East, led thus to the republican form of a council, led in the democratic West to the development of the autocratic papal power; but in both it was found that the final authority thus appealed to had no innate or divinely derived energy. It was altogether helpless against any one disposed to resist it except by the aid of military or civil compulsion.

It was impossible that any other opinion could be entertained of the character of these assemblages by men of practical ability who had been concerned in their transactions. Gregory of Nazianzen, one of the most pious and able men of his age, and who, during a part of its sittings, was president of the Council of Constantinople, A.D. 381, refused subsequently to attend any more, saying that he had never known an assembly of bishops terminate well; that, instead of removing evils, they only increased them, and that their strifes and lust of power were not to be described. A thousand years later, Æneas Sylvius, Pope Pius II., speaking of another council, observes that it was not so much directed by the Holy Ghost as by the passions of men.

Notwithstanding the contradictions and opposition they so frequently

Progressive variation of human thought manifested by these councils.

exhibit, there may be discerned in the decisions of these bodies the traces of an affiliation indicating the continuous progression of thought. Thus, of the four œcumenical councils that were concerned with the facts spoken of in the preceding pages, that of Nicea determined the Son to be of the same substance with the Father; that of Constantinople, that the Son and Holy Spirit are equal to the Father; that of Ephesus, that the two natures of Christ make but one person; and that of Chalcedon, that these natures remain two, notwithstanding their personal union. But that they failed of their object in constituting a criterion of truth is plainly demonstrated by such simple facts as that, in the fourth century alone, there were thirteen councils adverse to Arius, fifteen in his favor, and seventeen for the semi-Arians—in all, forty-five. From such a confusion, it was necessary that the councils themselves must be subordinate to a higher authority—a higher criterion, able to give to them or refuse to them authenticity. That the source of power, both for the council in the East and the papacy in the West, was altogether political, is proved by almost every transaction in which they were concerned. In the case of the papacy, this was well seen in the contest between Hilary the Bishop of Arles, and Leo, on which occasion an edict was issued by the Emperor Valentinian denouncing the contumacy of Hilary, and setting forth that, “though the sentence of so great a pontiff as the Bishop of Rome did not need imperial confirmation, yet that it must now be understood by all bishops that the decrees of the apostolic see should henceforth be law, and that whoever refused to obey the citation of the Roman pontiff should be compelled to do so by the moderator of the province.” Herein we see the intrinsic nature of papal power distinctly. It is allied with physical force.

Pontifical power sustained by physical force.

In the midst of these theological disputes occurred that great event which I have designated as marking the close of the age of Inquiry. It was the fall of Rome.

The fall of Rome.

In the Eastern empire the Goths had become permanently settled, having laws of their own, a magistracy of their own, paying no taxes, but contributing 40,000 men to the army. The Visigoths were spreading through Greece, Spain, Italy. In their devastations of the former country, they had spared Athens for the sake of her recollections. The Eleusinian mysteries had ceased. From that day Greece never saw prosperity again. Alaric entered Italy. Stilicho, the imperial general, forced him to retreat. Rhadogast made his invasion. Stilicho compelled him to surrender at discretion. The Burgundians and Vandals overflowed Gaul; the Suevi, Vandals, and Alans overflowed Spain. Stilicho, a man worthy of the old days of the republic, though a Goth, was murdered by the emperor his master. Alaric appeared before Rome. It was 619 years since she had felt the presence

Spread of the barbarians.

of a foreign enemy, and that was Hannibal. She still contained 1780 senatorial palaces, the annual income of some of the owners of which was \$800,000. The city was eighteen miles in circumference, and contained above a million of people—of people, as in old times, clamorous for distributions of bread, and wine, and oil. In its conscious despair, the apostate city, it is said, with the consent of the pope, offered sacrifice to Jupiter, its repudiated, and, as it now believed, its offended god. A million of dollars, together with many costly goods, were paid as a ransom. The barbarian general retired. He was insulted by the emperor from his fastness at Ravenna. Altercations and new marches ensued; and at last, for the third time, Alaric appeared before Rome. At midnight on the 24th of April, A.D. 410, eleven hundred and sixty-three years from the foundation of the city, the Salarian gate was opened to him by the treachery of slaves; there was no god to defend her in her dire extremity, and Rome was sacked by the Goths.

Has the Eternal City really fallen! was the universal exclamation throughout the empire when it became known that Alaric had taken Rome. Though paganism had been ruined in a national sense, the true Roman ethnical element had never given it up, but was dying out with it, a relic of the population of the city still adhering to the ancient faith. Among this were not wanting many of the aristocratic families and philosophers, who imputed the disaster to the public apostasy, and in their shame and suffering loudly proclaimed that the nation was justly punished for its abandonment of the gods of its forefathers, the gods who had given victory and empire. It became necessary for the Church to meet this accusation, which, while it was openly urged by thousands, was doubtless believed to be true by silent, and timid, and panic-stricken millions. With the intention of defending Christianity, St. Augustine, one of the ablest of the fathers, solemnly devoted thirteen years of his life to the composition of his great work entitled "The City of God." It is interesting for us to remark the tone of some of these replies of the Christians to their pagan adversaries.

'For the manifest deterioration of Roman manners, and for the impending dissolution of the state, paganism itself is responsible. Our political power is only of yesterday; it is in no manner concerned with the gradual development of luxury and wickedness, which has been going on for the last thousand years. Your ancestors made war a trade; they laid under tribute and enslaved the adjacent nations; but were not profusion, extravagance, dissipation, the necessary consequences of conquest? was not Roman idleness the inevitable result of the filling of Italy with slaves? Every hour rendered wider that bottomless gulf which separates immense riches from abject poverty. Did not the middle class, in which reside the virtue and

Capture and sack of Rome by Alaric.

Accusations of the Pagans against the Christians.

The Christian reply.

strength of a nation, disappear, and aristocratic families remain in Rome, whose estates in Syria or Spain, Gaul or Africa, equaled, nay, even exceeded in extent and revenue illustrious kingdoms, provinces for the annexation of which the republic of old had decreed triumphs? Was there not in the streets a profligate rabble living in total idleness, fed and amused at the expense of the state? We are not answerable for the grinding oppression perpetrated on the rural populations until they have been driven to despair, their numbers so diminishing as to warn us that there is danger of their being extinguished. We did not suggest to the Emperor Trajan to abandon Dacia, and neglect that policy which fixed the boundaries of the empire at strong military posts. We did not suggest to Caracalla to admit all sorts of people to Roman citizenship, nor dislocate the population by a wild pursuit of civil offices or the discharge of military duties. We did not crowd Italy with slaves, nor make those miserable men more degraded than the beasts of the field, compelling them to labors which are the business of the brutes. We have taught and practiced a very different doctrine to that. We did not nightly put into irons the population of provinces and cities reduced to bondage. We are not responsible for the inevitable insurrections, poisonings, assassinations, vengeance. We did not bring on that state of things in which a man having a patrimony found it his best interest to abandon it without compensation and flee. We did not demoralize the populace by providing them food, games, races, theatres; we have been persecuted because we would not set our feet in a theatre. We did not ruin the senate and aristocracy by sacrificing every thing, even ourselves, for the Julian family. We did not neutralize the legions by setting them to fight against one another. We were not the first to degrade Rome; Dioclesian, who persecuted us, gave the example by establishing his residence at Nicomedia. As to the sentiment of patriotism of which you vaunt, was it not destroyed by your own emperors? When they had made Roman citizens of Gauls and Egyptians, Africans and Huns, Spaniards and Syrians, how could they expect that such a motley crew would remain true to the interests of an Italian town, and that town their hated oppressor. Patriotism depends on concentration; it can not bear diffusion. Something more than such a worldly tie was wanted to bind the diverse nations together; they have found it in Christianity. A common language imparts community of thought and feeling; but what was to be expected when Greek is the language of one half of the ruling classes, and Latin of the other? we say nothing of the thousand unintelligible forms of speech in use throughout the Roman world. The fall of the senate anteceded, by a few years, the origin of Christianity; you will not surely say that we were the inciters of the usurpations of the Cæsars? What have we had to do with the army, that engine of violence, which in ninety-two years gave you thirty-two

emperors and twenty-seven pretenders to the throne? We did not suggest to the Prætorian Guards to put up the empire at auction.

'Can you really wonder that all this should come to an end? We do not wonder; on the contrary, we thank God for it. It is time that the human race had rest. The sighing of the prisoner, the prayer of the captive, are heard at last. Yet the judgment has been tempered with mercy. Had the pagan Rhadogast taken Rome, not a life would have been spared, no stone left on another. The Christian Alaric, though a Goth, respects his Christian brethren, and for their sakes you are saved. As to the gods, those dæmons in whom you trust, did they always save you from calamity? How long did Hannibal insult them? Was it a goose or a god that saved the Capitol from Brennus? Where were the gods in all the defeats, some of them but recent, of the pagan emperors? It is well that the purple Babylon has fallen, the harlot who was drunk with the blood of nations.

'In the place of this earthly city, this vaunted mistress of the world, whose fall closes a long career of superstition and sin, there shall arise "the City of God." The purifying fire of the barbarian shall remove her heathenish defilements, and make her fit for the kingdom of Christ. Instead of a thousand years of that night of crime, to which in your despair you look back, there is before her the day of the millennium, predicted by the prophets of old. In her regenerated walls there shall be no taint of sin, but righteousness and peace; no stain of the vanities of the world, no conflicts of ambition, no sordid hunger for gold, no lust of glory, no desire for domination, but holiness to the Lord.'

Of those who in such sentiments defended the cause of the new religion St. Augustine was the chief. In his great work, "the City of God," which may be regarded as the ablest specimen of the early Christian literature, he pursues this theme, if not in the language, at least in the spirit here presented, and through a copious detail of many books. On the later Christianity of the Western churches he has exerted more influence than any other of the fathers. To him is due much of the precision of our views on original sin, total depravity, grace, predestination, election.

In his early years St. Augustine had led a frivolous and evil life, plunging into all the dissipations of the gay city of Carthage. Through the devious paths of Manichæism, astrology, and skepticism, he at last arrived at the truth. It was not, however, the fathers, but Cicero, to whom the good change was due; the writings of that great orator won him over to a love of wisdom, weaning him from the pleasures of the theatre, the follies of divination and superstition. From his Manichæan errors, however, he was snatched by Ambrose, the Bishop of Milan, who baptized him, together with his illegitimate son Adeodatus. In his writings we may, without difficulty,

St. Augustine's
"City of God."
Life and writings
of St. Augustine.

recognize the vestiges of Magianism, not as regards the duality of God, but as respects the division of mankind—the elect and lost; the kingdoms of grace and perdition, of God and the devil; answering to the Oriental ideas of the rule of light and darkness. From Ambrose, St. Augustine learned those high Trinitarian doctrines which were soon enforced in the West.

In his philosophical disquisitions on Time, Matter, Memory, this far-famed writer is, however, always unsatisfactory, often trivial. His doctrine that Scripture, as the Word of God, is capable of a manifold meaning, led him into many delusions, and exercised, in subsequent ages, a most baneful influence on true science. Thus he finds in the Mosaic account of the creation proofs of the Trinity; that the firmament spoken of therein is the type of God's word; and that there is a correspondence between creation itself and the Church. His numerous books have often been translated, especially his *Confessions*, a work that has delighted and edified fifty generations, but which must, after all, yield the palm, as a literary production, to the writings of Bunyan, who, like Augustine, gave himself up to all the agony of unsparing personal examination and relentless self-condemnation, anatomizing his very soul, and dragging forth every sin into the face of day.

The ecclesiastical influence of St. Augustine has so completely eclipsed his political biography that but little attention has been given to his conduct in the interesting time in which he lived. Sismondi recalls to his disadvantage that he was the friend of Count Boniface, who invited Genseric and his Vandals into Africa; the bloody consequences of that conspiracy can not be exaggerated. It was through him that the count's name has been transmitted to posterity without infamy. Boniface was with him when he died, at Hippo, August 28th, A.D. 430.

When Rome thus fell before Alarie, so far from the provincial Christians bewailing her misfortune, they actually gloried in it. They critically distinguished between the downfall of the purple pagan harlot and the untouched city of God. The vengeance of the Goth had fallen on the temples, but the churches had been spared. Though in subsequent and not very distant calamities of the city these triumphant distinctions could scarcely be maintained, there can be no doubt that that catastrophe singularly developed papal power. The abasement of the ancient aristocracy brought into relief the bishop. It has been truly said that, as Rome rose from her ruins, the bishop was discerned to be her most conspicuous man. Most opportunely, at this period Jerome had completed his Latin translation of the Bible. The Vulgate henceforth became the ecclesiastical authority of the West. The influence of the heathen classics, which that austere anchorite had in early life admired, but had vainly attempted to free himself from by unremitting nocturnal flagellations, appears in this great version. It

Propitious effect
of Alarie's siege.

came at a critical moment for the West. In the politic non-committalism of Rome, it was not expedient that a pope should be an author. The Vulgate was all that the times required. Henceforth the East might occupy herself in the harmless fabrication of creeds and of heresies; the West could develop her practical talent in the much more important organization of ecclesiastical power.

Doubtless not without interest will the reader of these pages remark how closely the process of ecclesiastical events resembles that of civil. In both there is an irresistible tendency to the concentration of power. As in Roman history we have seen a few families, and, indeed, at last, one man grasp the influence which in earlier times was disseminated among the people, so in the Church the congregations are quickly found in subordination to their bishops, and these, in their turn, succumbing to a perpetually diminishing number of their compeers. In the ^{The fate of the three great bishops.} period we are now considering, the minor episcopates, such as those of Jerusalem, Antioch, Carthage, had virtually lost their pristine force, every thing having converged into the three great sees of Constantinople, Alexandria, and Rome. The history of the time is a record of the desperate struggles of the three chief bishops for supremacy. In this conflict Rome possessed many advantages; the two others were more immediately under the control of the imperial government, the clashing of interests between them more frequent, their rivalry more bitter. The control of ecclesiastical power was hence perpetually in Rome, though she was, both politically and intellectually, inferior to her competitors. As of old, there was a triumvirate in the world destined to concentrate into a despotism. And, as if to remind men that the principles involved in the movements of the Church are of the same nature as those involved in the movements of the state, the resemblances here pointed out are sometimes singularly illustrated in trifling details. The Bishop of Alexandria was not the first triumvir who came to an untimely end on the banks of the Nile; the Roman pontiff was not the first who consolidated his power by the aid of Gallic legions.

CHAPTER X.

THE EUROPEAN AGE OF FAITH.

AGE OF FAITH IN THE EAST.

Consolidation of the Byzantine System, or the Union of Church and State.—The consequent Paganization of Religion and Persecution of Philosophy.

Political Necessity for the Enforcement of Patristicism, or Science of the Fathers.—Its peculiar Doctrines.

Obliteration of the Vestiges of Greek Knowledge by Patristicism.—The Libraries and Serapion of Alexandria.—Destruction of the latter by Theodosius.—Death of Hypatia.—Extinction of Learning in the East by Cyril, his Associates and Successors.

THE policy of Constantine the Great inevitably tended to the paganization of Christianity. An incorporation of its pure doctrines with decaying pagan ideas was the necessary consequence of the control that had been attained by unscrupulous politicians and placemen. The faith, thus contaminated, gained a more general and ready popular acceptance, but at the cost of a new lease of life to those ideas. So thorough was the adulteration that it was not until the Reformation, a period of more than a thousand years, that a separation of the true from the false could be accomplished.

Considering how many nations were involved in these events, and the length of time over which they extend, a clear treatment of the subject requires its subdivision. I shall therefore speak, 1st, of the Age of Faith in the East; 2d, of the Age of Faith in the West. The former was closed prematurely by the Mohammedan conquest; the latter, after undergoing slow metamorphosis, passed into the European Age of Reason during the pontificate of Nicolas V.

In this and the following chapter I shall therefore treat of the age of Faith in the East, and of the catastrophe that closed it. I shall then turn to the Age of Faith in the West—a long but an instructive story.

The paganization of religion was in no small degree assisted by the influence of the females of the court of Constantinople. It soon manifested all the essential features of a true mythology and hero-worship. Helena, the empress-mother, superintended the building of monumental churches over the reputed places of interest in the history of our Savior—those of his birth, his burial, his ascension. A vast and ever-increasing crowd of converts from paganism, who had become such from worldly considerations, and still hankered after won-

ders like those in which their forefathers had from time immemorial believed, lent a ready ear to assertions which, to more hesitating or better-instructed minds, would have seemed to carry imposture on their very face. A temple of Venus, formerly erected on the site of the Holy Sepulchre, being torn down, there were discovered, in a cavern beneath, three crosses, and also the inscription written by Pilate. Discovery of the true cross and nails. The Savior's cross, being by miracle distinguished from those of the thieves, was divided, a part being kept at Jerusalem and a part sent to Constantinople, together with the nails used in the crucifixion, which were also fortunately found. These were destined to adorn the head of the emperor's statue on the top of the porphyry pillar. The wood of the cross, moreover, displayed a property of growth, and hence furnished an abundant supply for the demands of pilgrims, and an unfailing source of pecuniary profit to its possessors. In the course of subsequent years there was accumulated in the various churches of Europe, from this particular relic, a sufficiency to have constructed many hundred crosses. The age that could accept such a prodigy, of course found no difficulty in the vision of Constantine and the story of the Labarum.

Such was the tendency of the times to adulterate Christianity with the spirit of paganism, partly to conciliate the prejudices of worldly converts, partly in the hope of securing its more Political causes of paganization. rapid spread. There is a solemnity in the truthful accusation which Faustus makes to Augustine: "You have substituted your agapæ for the sacrifices of the pagans; for their idols your martyrs, whom you serve with the very same honors. You appease the shades of the dead with wine and feasts; you celebrate the solemn festivals of the Gentiles, their calends and their solstices; and as to their manners, those you have retained without any alteration. Nothing distinguishes you from the pagans except that you hold your assemblies apart from them."

As we have seen in the last chapter, the course of political affairs had detached the power of the state from the philosophical and polytheistic parties. Joined to the new movement, it was not long before it gave significant proofs of the sincerity of its friendship by commencing an active persecution of the remnant of philosophy. It is to be Relative action of faith and philosophy. borne in mind that the direction of the proselytism, which was thus leading to important results, was from below upward through society. As to philosophy, its action had been in the other direction; its depository in the few enlightened, in the few educated; its course, socially, from above downward. Under these circumstances, it was obvious enough that the prejudices of the ignorant populace would find, in the end, a full expression; that learning would have no consideration shown to it, or be denounced as mere magic; that philosophy would be looked upon as a vain, and therefore sinful pursuit. When once a political aspirant has bidden with the multitude for power, and still de-

pend on their pleasure for effective support, it is no easy thing to refuse their wishes or hold back from their demands. Even Constantine himself felt the pressure of the influence to which he was allied, and was compelled to surrender his friend Sopater, the philosopher, who was accused of binding the winds in an adverse quarter by the influence of magic, so that the corn-ships could not reach Constantinople; and the emperor was obliged to give orders for his decapitation to satisfy the clamors in the theatre. Not that such requisitions were submitted to without a struggle, or that succeeding sovereigns were willing to make their dignity tacitly subordinate to ecclesiastical domination. It was the aim of Constantine to make theology a branch of politics; it was the hope of every bishop in the empire to make politics a branch of theology. Already, however, it was apparent that the ecclesiastical party would, in the end, get the upper hand, and that the reluctance of some of the emperors to obey its behests was merely the revolt of individual minds, and therefore ephemeral in its nature, and that the popular wishes would be abundantly gratified as soon as emperors arose who not merely, like Constantine, availed themselves of Christianity, but absolutely and sincerely adopted it.

Julian, by his brief but ineffectual attempt at the restoration of paganism, scarcely restrained for a moment the course of the new doctrines now strengthening themselves continually in public estimation by incorporating ideas borrowed from paganism. Through the reign of Valentinian, who was a Nicenist, and Valens, who was an Arian, things went on almost as if the episode of Julian had never occurred. The ancient gods, whose existence no one seems ever to have denied, were now thoroughly identified with dæmons; their worship was stigmatized as the practice of magic. Against this crime, regarded by the laws as equal to treason, a violent persecution arose.

Persons resorting to Rome for the purposes of study were forbidden to remain there after they were twenty-one years of age. The force of this persecution fell practically upon the old religion, though nominally directed against the black art, for the primary function of paganism was to foretell future events in this world, and hence its connection with divination and its punishment as magic.

But the persecution, though directed at paganism, struck also at what remained of philosophy. A great party had attained to power under circumstances which compelled it to enforce the principle on which it was originally founded. That principle was the exaction of unhesitating belief, which, though it will answer very well for the humbler and more numerous class of men, is unsuited for those of a higher intellectual grade. The policy of Constantine had led a career in the state, through the Church, for men of the lowest rank. Many of such had already attained to the highest dignities. A

The emperors resist their ecclesiastical allies.

The Emperor Julian.

Persecutions of his successors.

Necessity of learning to the bishops.

burning zeal rather than the possession of profound learning animated them. But eminent position once attained, none stood more in need of the appearance of wisdom. Under such circumstances, they were tempted to set up their own notions as final and unimpeachable truth, and to denounce as magic, or the sinful pursuit of vain trifling, all the learning that stood in the way. In this the hand of the civil power assisted. It was intended to cut off every philosopher. Every manuscript that could be seized was forthwith burned. Throughout the East, men in terror destroyed their libraries, for fear that some unfortunate sentence contained in any of the books should involve them and their families in destruction. The universal opinion was that it was right to compel men to believe what the majority of society had now accepted as the truth, and, if they refused, it was right to punish them. No one was heard in the dominating party to raise his voice in behalf of intellectual liberty. The mystery of things above reason was held to be the very cause that they should be accepted by Faith; a singular merit was supposed to appertain to that mental condition in which belief precedes understanding.

Growth of bigotry and superstition.

The death-blow to paganism was given by the Emperor Theodosius, a Spaniard, who, from the services he rendered in this particular, has been rewarded with the title of "The Great." From making the practice of magic and the inspection of the entrails of animals capital offenses, he proceeded to the prohibition of sacrifices, A.D. 391, and even the entering of temples. He alienated the revenues of many temples, confiscated the estates of others, some he demolished. The vestal virgins he dismissed, and any house profaned by incense he declared forfeited to the imperial exchequer. When once the property of a religious establishment has been irrevocably taken away, it is needless to declare its worship a capital crime.

Fanaticism of Theodosius.

But not only did the government thus constitute itself a thorough auxiliary of the new religion, it also tried to secure it from its own dissensions. Apostates were deprived of the right of bequeathing their own property. Inquisitors of faith were established; they were at once spies and judges, the prototypes of the most fearful tribunal of modern times. Theodosius, to whom the carrying into effect of these measures was due, found it, however, more expedient for himself to institute living emblems of his personal faith than to rely on any ambiguous creed. He therefore sentenced all those to be deprived of civil rights, and to be driven into exile, who did not accord with the belief of Damasus, the Bishop of Rome, and Peter, the Bishop of Alexandria. Those who presumed to celebrate Easter on the same day as the Jews he condemned to death. "We will," says he, in his edict, "that all who embrace this creed be called catholic Christians"—the rest are heretics.

Impartial history is obliged to impute the origin of these tyrannical

and scandalous acts of the civil power to the influence of the clergy, and to hold them responsible for the crimes. The guilt of impure unscrupulous women, eunuchs, parasites, violent soldiers in possession of absolute power, lies at their door. Yet human nature can never, in any condition of affairs, be altogether debased. Though the system under which men were living pushed them forward to these iniquities, the individual sense of right and wrong sometimes vindicated itself. In these pages we shall again and again meet this personal revolt against the indefensible consequences of system. It was thus that there were bishops who openly intervened between the victim and his oppressor, who took the treasures of the Church to redeem slaves from captivity. For this a future age will perhaps excuse Ambrose, the Archbishop of Milan, the impostures he practiced, remembering that, face to face, he held Theodosius the Great to an accountability for the massacre of seven thousand persons, whom, in a fit of vengeance, he had murdered in the circus of Thessalonica, A.D. 390, and inexorably compelled the imperial culprit, to whom he and all his party were under such obligations, to atone for his crime by such penance as may be exacted in this world, teaching his sovereign "that though he was of the Church and in the Church, he was not above the Church;" that brute force must give way to intellect, and that even the meanest human being has rights in the sight of God.

Political events had thus taken a course disastrous to human knowledge. A necessity had arisen that they to whom circumstances had given the control of public faith should also have the control of public knowledge. The moral condition of the world had thus come into antagonism to scientific progress. As had been the case many ages before in India, the sacred writings were asserted to contain whatever was necessary or useful to man to know. Questions in astronomy, geography, chronology, history, or any other branch which had hitherto occupied or amused the human mind, were now to be referred to a new tribunal for solution, and there remained nothing to be done by the philosopher. A revelation of science is incompatible with any farther advance; it admits no employment save that of the humble commentator.

The early ecclesiastical writers, or fathers, as they are often called, came thus to be considered not only as surpassing all other men in piety, but also as excelling them in wisdom. Their dictum was looked upon as final. This eminent position they held for many centuries; indeed, it was not until near the period of the Reformation that they were deposed. The great critics who appeared at that time, by submitting the Patristic works to a higher analysis, comparing them with one another and showing their mutual contradictions, brought them all to their proper level. The habit of even so much as quoting them went out of

nse, when it was perceived that not one of these writers could present the necessary credentials to entitle him to speak with authority on any scientific fact. Many of them had not scrupled to express their contempt of the things they thus presumed to judge. Thus Eusebius says: "It is not through ignorance of the things admired by philosophers, but through contempt of such useless labor, that we think so little of these matters, turning our souls to the exercise of better things." In such a spirit Lactantius holds the whole of philosophy to be "empty and false." Speaking in reference to the heretical doctrine of the globular form of the earth, he says: "Is it possible that men can be so absurd as to believe that the crops and the trees on the other side of the earth hang downward, and that men have their feet higher than their heads? If you ask them how they defend these monstrosities? how things do not fall away from the earth on that side? they reply that the nature of things is such, that heavy bodies tend toward the centre like the spokes of a wheel, while light bodies, as clouds, smoke, fire, tend from the centre to the heavens on all sides. Now I am really at a loss what to say of those who, when they have once gone wrong, steadily persevere in their folly, and defend one absurd opinion by another." On the question of the antipodes, St. Augustine asserts that "it is impossible there should be inhabitants on the opposite side of the earth, since no such race is recorded by Scripture among the descendants of Adam."

Patristicism, or the science of the fathers, was thus essentially founded on the principle that the Scriptures contain all knowledge permitted to man. It followed, therefore, that natural events may be interpreted by the aid of texts, and that all philosophical doctrines must be moulded to the standard of orthodoxy. It asserted that God made the world out of nothing, since to admit the eternity of matter leads to Manicheism. It taught that the earth is a plane, and the sky a vault above it, in which the stars are fixed, and the sun, moon, and planets perform their motions, rising and setting; that these bodies are altogether of a subordinate nature, their use being to give light to man; that still higher and beyond the vault of the sky is heaven, the abode of God and the angelic hosts; that in six days the earth, and all that it contains, was made; that it was overwhelmed by a universal deluge, which destroyed all living things save those preserved in the ark, the waters being subsequently dried up by the wind; that man is the moral centre of the world; for him all things were created and are sustained; that, so far from his ever having shown any tendency to improvement, he has fallen both in wisdom and worth, the first man, before his sin, having been perfect in body and soul: hence Patristicism ever looked backward, never forward; that through that sin death came into the world; not even any animal had died previously, but all had been immortal. It utterly rejected the idea of the government of the world

Apology of the
fathers for Pa-
tristicism.

The doctrines of
Patristicism.

by law, asserting the perpetual interference of an instant Providence on all occasions, not excepting the most trifling. It resorted to spiritual influences in the production of natural effects, assigning to angels the duty of moving the stars, carrying up water from the sea to form rain, and managing eclipses. It affirmed that man had existed but a few centuries upon earth, and that he could continue only a little longer, for that the world itself might be every moment expected to be burned up by fire. It deduced all the families of the earth from one primitive pair, and made them all morally responsible for the sin committed by that pair. It rejected the doctrine that man can modify his own organism as absolutely irreligious, the physician being little better than an atheist, but it affirmed that cures might be effected by the intercession of saints, at the shrines of holy men, and by relics. It altogether repudiated the improvement of man's physical state; to increase his power or comfort was to attempt to attain what Providence had denied; philosophical investigation was an unlawful prying into things that God had designed to conceal. It declined the logic of the Greeks, substituting miracle-proof for it, the demonstration of an assertion being supposed to be given by a surprising illustration of something else.

A wild astronomy had thus supplanted the astronomy of Hipparchus; the miserable fictions of Eusebius had subverted the chronology of Manetho and Eratosthenes; the geometry of Euclid and Apollonius was held to be of no use; the geography of Ptolemy a blunder; the great mechanical inventions of Archimedes incomparably surpassed by the miracles worked at the shrines of a hundred saints.

Of such a mixture of truth and of folly was Patristicism composed. Ignorance in power had found it acceptable to have a false and unprogressive science, forgetting that sooner or later the time must arrive when it would be impossible to maintain stationary ideas in a world of which the affairs are ever advancing. A failure to include in the system thus imposed upon men any provision for intellectual progress was the great and fatal mistake of those times. Each passing century brought its incompatibilities. A strain upon the working of the system soon occurred, and perpetually increased in force. It became apparent that, in the end, the imposition would be altogether unable to hold together. On a future page we shall see what were the circumstances under which it at last broke down.

The wonder-worker who prepares to exhibit his phantasmagoria upon the wall, knows well how much it adds to the delusion to have all lights extinguished save that which is in his own dark lantern. I have now to relate how the last flickering rays of Greek learning were put out; how Patristicism, aided by her companion Bigotry, attempted to lay the foundations of her influence in security.

Intrinsic weakness of the Patristic system.

It commences by extinguishing Greek science.

In the reign of Theodosius the Great, the pagan religion and pagan knowledge were together destroyed. This emperor was restrained by no doubts, for he was very ignorant, and, it must be admitted, was equally sincere and severe. Among his early measures we find an order that if any of the governors of Egypt so much as entered a temple he should be fined fifteen pounds of gold. He followed this by the destruction of the temples of Syria. At this period the Archbishopric of Alexandria was held by one Theophilus, a bold, bad man, who had once been a monk of Nitria. It was about A.D. 390. The Trinitarian conflict was at the time composed, one party having got the better of the other. To the monks and rabble of Alexandria the temple of Serapis and its library were doubly hateful, partly because of the Pantheistic opposition it shadowed forth against the prevailing doctrine, and partly because within its walls sorcery, magic, and other dealings with the devil had for ages been going on. We have related how Ptolemy Philadelphus commenced the great library in the aristocratic quarter of the city named Bruchion, and added various scientific establishments to it. Incited by this example, Eumenes, King of Pergamus, established out of rivalry a similar library in his metropolis. With the intention of preventing him from excelling that of Egypt, Ptolemy Epiphanes prohibited the exportation of papyrus, whereupon Eumenes invented the art of making parchment. The second great Alexandrian library was that established by Ptolemy Physcon at the Serapion, in the adjoining quarter of the town. The library in the Bruchion, which was estimated to contain 400,000 volumes, was accidentally, or, as it has been said, purposely burned during the siege of the city by Julius Cæsar, but that in the Serapion escaped. To make amends for this great catastrophe, Marc Antony presented to Cleopatra the rival library, brought for that purpose from Pergamus. It consisted of 200,000 volumes. It was with the library in the Bruchion that the Museum was originally connected; but after the conflagration thereof, the remains of the various surviving establishments were transferred to the Serapion, which therefore was, at the period of which we are speaking, the greatest depository of human knowledge in the world.

The pagan Roman emperors had not been unmindful of the great trust they had thus inherited from the Ptolemies. The temple of Serapis was universally admitted to be the noblest religious structure in the world, unless perhaps the patriotic Roman excepted that of the Capitoline Jupiter. It was approached by a vast flight of steps; was adorned with many rows of columns; and in its quadrangular portico—a matchless work of skill—were placed most exquisite statues. On the sculptured walls of its chambers, and upon ceilings, were paintings of unapproachable excellence. Of the value of these works of art the Greeks were no incompetent judges.

Acts of the Emperor Theodosius.

Alexandrian libraries.

Library of Pergamus transferred to Egypt.

The temple of Serapis.

The Serapion, with these its precious contents, perpetually gave umbrage to the Archbishop Theophilus and his party. To them it was a reproach and an insult. Its many buildings were devoted to unknown, and therefore unholy uses. In its vaults and silent chambers the populace believed that the most abominable mysteries were carried on. There were magical brazen circles and sun-dials for fortune-telling in its porch; every one said that they had once belonged to Pharaoh or the conjurors who strove with Moses. Alas! no one of the ferocious bigots knew that with these Eratosthenes had in the old times measured the size of the earth, and Timocharis had determined the motions of the planet Venus. The temple, with its pure white marble walls, and endless columns projected against a blue and cloudless Egyptian sky, was to them a whited sepulchre full of rottenness within. In the very sanctuary of the god it was said that the priests had been known to delude the wealthiest and most beautiful Alexandrian women, who fancied that they were honored by the raptures of the god. To this temple, so well worthy of their indignation, Theophilus directed the attention of his people. It happened that the Emperor Constantius had formerly given to the Church the site of an ancient temple of Osiris, and, in digging the foundation for the new edifice, the obscene symbols used in that worship chanced to be found. With more zeal than modesty, Theophilus exhibited them to the derision of the rabble in the market-place. The old Egyptian pagan party rose to avenge the insult. A riot en-

Quarrel between
the Christians
and pagans in
Alexandria.

sued, one Olympius, a philosopher, being their leader. Their head-quarters were in the massive building of the Serapion, from whence issuing forth they seized whatever Christians they could, compelled them to offer sacrifice, and then killed them on the altar. The dispute was referred to the emperor, in the mean time the pagans maintaining themselves in the temple-fortress. In the dead of the night, Olympius, it is said, was awe-stricken by the sound of a clear voice chanting among the arches and pillars the Christian Alleluiah. Either accepting, like a heathen, the omen, or fearing a secret assassin,

Theodosius orders
the Serapion to be
torn down.

he escaped from the temple and fled for his life. * On the arrival of the rescript of Theodosius the pagans laid down their arms, little expecting the orders of the emperor. He enjoined that the building should forthwith be destroyed, intrusting the task to the swift hands of Theophilus. His work was commenced by the pillage and dispersal of the library. He entered the sanctuary of the god—that sanctuary which was the visible sign of the Pantheism of the East, the memento of the alliance between hoary primeval Egypt and free-thinking Greece, the relic of the statesmanship of Alexander's captains. In gloomy silence the image of Serapis confronted its assailants. It is in such a moment that the value of a religion is tried; the god who can not defend himself is a convicted sham. The-

Statue of Serapis
is destroyed.

ophilus, undaunted, commands a veteran to strike the image with his battle-axe. The helpless statue offers no resistance. Another blow rolls the head of the idol on the floor. It is said that a colony of frightened rats ran forth from its interior. The kingcraft, and priestcraft, and solemn swindle of seven hundred years is exploded in a shout of laughter; the god is broken to pieces, his members dragged through the streets. The recesses of the Serapion are explored. Posterity is edified by discoveries of the frauds by which priests maintain their power. Among other wonders, a car with four horses is seen suspended near the ceiling by means of a magnet laid on the roof, which being removed by the hand of a Christian, the imposture fell to the pavement. The historian of these events, noticing the physical impossibility of such things, has wisely said that it is more easy to invent a fictitious story than to support a practical fraud. But the gold and silver contained in the temple were carefully collected, the baser articles being broken in pieces or cast into the fire. Nor did the holy zeal of Theophilus rest until the structure was demolished to its very foundations—a work of no little labor—and a church erected in the precincts. It must, however, have been the temple more particularly which experienced this devastation. The building in which the library had been contained must have escaped, for, twenty years subsequently, Orosius expressly states that he saw the empty cases or shelves. The fanatic Theophilus pushed forward his victory. The temple at Canopus next fell before him, and a general attack was made on all similar edifices in Egypt. Speaking of the monks and of the worship of relics, Eusebius says: "Whoever wore a black dress was invested with tyrannical power; philosophy and piety to the gods were compelled to retire into secret places, and to dwell in contented poverty and dignified meanness of appearance. The temples were turned into tombs for the adoration of the bones of the basest and most depraved of men, who had suffered the penalty of the law, and whom they made their gods." Persecutions of Theophilus.

Such was the end of the Serapion. Its destruction stands forth an enduring token of the state of the times.

In a few years after this memorable event the Archbishop Theophilus had gone to his account. His throne was occupied by his nephew, St. Cyril, who had been expressly prepared for that holy and responsible office by a residence of five years among the monks of Nitria. He had been presented to the fastidious Alexandrians with due precautions, and by them acknowledged to be an effective and fashionable preacher. His pagan opponents, however, asserted that the clapping of hands and encores bestowed on the more elaborate passages of his sermons were performed by persons duly arranged in the congregation, and paid for their trouble. If doubt remains as to his intellectual en-

dowments, there can be none respecting the qualities of his heart. **T**he three parties into which the population of the city was divided—**C**hristian, Heathen, and Jew—kept up a perpetual disorder by their disputes. Of the last it is said that the number was not less than forty thousand. The episcopate itself had become much less a religious than an important civil office, exercising a direct municipal control through the **P**arabolani, which, under the disguise of city missionaries, whose duty it was to seek out the sick and destitute, constituted in reality a constabulary force, or rather actually a militia. The unscrupulous manner in which **C**yril made use of this force, diverting it from its ostensible purpose, is indicated by the fact that the emperor was obliged eventually to take the appointments to it out of the archbishop's hands, and reduce the number to five or six hundred. Some local circumstances had increased the animosity between the Jews and the Christians, and riots had taken place between them in the theatre. **T**hese were followed by more serious conflicts in the streets; and the Jews, for the moment having the advantage over their antagonists, outraged and massacred them. It was, however, but for a moment; for, the Christians arousing themselves under the inspirations of Cyril, a mob sacked the synagogues, pillaged the houses of the Jews, and endeavored to expel those offenders out of the city. The Prefect Orestes was compelled to interfere to stop the riot; but the archbishop was not so easily disposed of. His old associates, the Nitrian monks, now justified the prophetic forecast of Theophilus. Five hundred of those fanatics swarmed into the town from the desert. The prefect himself was assaulted, and wounded in the head by a stone thrown by one of them, Ammonius. The more respectable citizens, alarmed at the turn things were taking, interfered, and Ammonius, being seized, suffered death at the hands of the lictor. Cyril, undismayed, caused his body to be transported to the Cæsareum, laid there in state, and buried with unusual honors. He directed that the name of the fallen zealot should be changed from Ammonius to Thaumasius, or "the Wonderful," and the holy martyr received the honors of canonization.

In these troubles there can be no doubt that the pagans sympathized with the Jews, and therefore drew upon themselves the vengeance of Cyril. Among the cultivators of Platonic philosophy whom the times **H**ypatia had left there was a beautiful young woman, Hypatia, the daughter of Theon the mathematician, who not only distinguished herself by her expositions of the Neo-Platonic and Peripatetic doctrines, but was also honored for the ability with which she commented on the writings of Apollonius and other geometers. Each day before her door stood a long train of chariots; her lecture-room was crowded with the wealth and fashion of Alexandria. Her aristocratic audiences were more than a rival to those attending upon the preaching of the archbishop, and

perhaps contemptuous comparisons were instituted between the philosophical lectures of Hypatia and the incomprehensible sermons of Cyril. But if the archbishop had not philosophy, he had what on such occasions is more valuable—power. It was not to be borne that a heathen sorceress should thus divide such a metropolis with a prelate; it was not to be borne that the rich, and noble, and young should thus be carried off by the black arts of a diabolical enchantress. Alexandria was too fair a prize to be lightly surrendered. It could vie with Constantinople itself. Into its streets, from the yellow sand-hills of the desert, long trains of camels and countless boats brought the abundant harvests of the Nile. A ship-canal connected the harbor of Eunostos with Lake Mareotis. The harbor was a forest of masts. Seaward, looking over the blue Mediterranean, was the great light-house, the Pharos, counted as one of the wonders of the world; and to protect the shipping from the north wind there was a mole three quarters of a mile in length, with its drawbridges, a marvel of the skill of the Macedonian engineers. Two great streets crossed each other at right angles—one was three, the other one mile long. In the square where they intersected stood the mausoleum in which rested the body of Alexander. The city was full of noble edifices—the palace, the exchange, the Cæsareum, the halls of justice. Among the temples, those of Pan and Neptune were conspicuous. The visitor passed countless theatres, churches, temples, synagogues. There was a time before Theophilus when the Serapion might have been approached on one side by a slope for carriages, on the other by a flight of a hundred marble steps. On these stood the grand portico with its columns, its checkered corridor leading round a roofless hall, the adjoining porches of which contained the library, and from the midst of its area arose a lofty pillar visible afar off at sea. On one side of the town were the royal docks, on the other the Hippodrome, and on appropriate sites the Necropolis, the market-places, the gymnasium, its stoa being a stadium long; the amphitheatre, groves, gardens, fountains, obelisks, and countless public buildings with gilded roofs glittering in the sun. Here might be seen the wealthy Christian ladies walking in the streets, their dresses embroidered with Scripture parables, the Gospels hanging from their necks by a golden chain, Maltese dogs with jeweled collars frisking round them, and slaves with parasols and fans trooping along. There might be seen the ever-trading, ever-thriving Jew, fresh from the wharves, or busy concocting his loans. But, worst of all, the chariots with giddy or thoughtful pagans hastening to the academy of Hypatia, to hear those questions discussed which have never yet been answered, “Where am I?” “What am I?” “What can I know?”—to hear discourses on antenatal existence, or, as the vulgar asserted, to find out the future by the aid of the black art, soothsaying by Chaldee talismans engraved on precious stones, by incantations

The city of
Alexandria.

with a glass and water, by moonshine on the walls, by the magic mirror, the reflection of a sapphire, a sieve, or cymbals; fortune-telling by the veins of the hand, or consultations with the stars.

Cyril at length determined to remove this great reproach, and overturn what now appeared to be the only obstacle in his way to uncontrolled authority in the city. We are reaching one of those moments in which great general principles embody themselves in individuals. It is Greek philosophy under the appropriate form of Hypatia; ecclesiastical ambition under that of Cyril. Their destinies are about to be fulfilled. As

Murder of Hypatia by Cyril. Hypatia comes forth to her academy, she is assaulted by Cyril's mob—an Alexandrian mob of many monks. Amid the fearful yelling of these barelegged and black-cowled fiends she is dragged from her chariot, and in the public street stripped naked. In her mortal terror she is haled into an adjacent church, and in that sacred edifice is killed by the club of Peter the Reader. It is not always in the power of him who has stirred up the worst passions of a fanatical mob to stop their excesses when his purpose is accomplished. With the blow given by Peter the aim of Cyril was reached, but his merciless adherents had not glutted their vengeance. They outraged the naked corpse, dismembered it, and, incredible to be said, finished their infernal crime by scraping the flesh from the bones with oyster-shells, and casting the remnants into the fire. Though in his privacy St. Cyril and his friends might laugh at the end of his antagonist, his memory must bear the weight of the righteous indignation of posterity.

Suppression of Alexandrian science. Thus, in the 414th year of our era, the position of philosophy in the intellectual metropolis of the world was determined; henceforth science must sink into obscurity and subordination. Its public existence will no longer be tolerated. Indeed, it may be said that from this period for some centuries it altogether disappeared. The leaden mace of bigotry had struck and shivered the exquisitely tempered steel of Greek philosophy. Cyril's acts passed unquestioned. It was now ascertained that throughout the Roman world there must be no more liberty of thought. It has been said that these events prove Greek philosophy to have been a sham, and, like other shams, it was driven out of the world when it was detected, and that it could not withstand the truth. Such assertions might answer their purposes very well, so long as the victors maintained their power in Alexandria, but they manifestly are of inconvenient application after the Saracens had captured the city. However these things may be, an intellectual stagnation settled upon the place, an invisible atmosphere of oppression, ready to crush down, morally and physically, whatever provoked its weight. And so for the next two dreary and weary centuries things remained, until oppression and force were ended by a foreign invader. It was well for the world that the Arabian conquerors avowed their true argument, the cimeter, and made

no pretensions to superhuman wisdom. They were thus left free to pursue knowledge without involving themselves in theological contradictions, and were able to make Egypt once more illustrious among the nations of the earth—to snatch it from the hideous fanaticism, ignorance, and barbarism into which it had been plunged. On the shore of the Red Sea once more a degree of the earth's surface was to be measured, and her size ascertained—but by a Mohammedan astronomer. In Alexandria the memory of the illustrious old times was to be recalled by the discovery of the motion of the sun's apogee by Albategnius, and the third inequality of the moon, the variation, by Aboul Wefa; to be discovered six centuries later in Europe by Tycho Brahe. The canal of the Pharaohs from the Nile to the Red Sea, cleared out by the Ptolemies in former ages, was to be cleared from its sand again. The glad desert listened once more to the cheerful cry of the merchant's camel-driver instead of the midnight prayer of the monk.

CHAPTER XI.

PREMATURE END OF THE AGE OF FAITH IN THE EAST.

THE THREE ATTACKS, VANDAL, PERSIAN, ARAB.

THE VANDAL ATTACK leads to the Loss of Africa.—Recovery of that Province by Justinian after great Calamities.

THE PERSIAN ATTACK leads to the Loss of Syria and Fall of Jerusalem.—The true Cross carried away as a Trophy.—Moral Impression of these Attacks.

THE ARAB ATTACK.—Birth, Mission, and Doctrines of Mohammed.—Rapid Spread of his Faith in Asia and Africa.—Fall of Jerusalem.—Dreadful Losses of Christianity to Mohammedanism.—The Arabs become a learned Nation.

Review of the Koran.—Reflections on the Loss of Asia and Africa by Christendom.

I HAVE now to describe the end of the age of Faith in the East. The Byzantine system, out of which it had issued, was destroyed by three attacks: 1st, by the Vandal invasion of Africa; 2d, by the military operations of Chosroes, the Persian king; 3d, by Mohammedanism.

Three attacks
made upon the
Byzantine sys-
tem.

Of these three attacks, the Vandal may be said, in a military sense, to have been successfully closed by the victories of Justinian, but, politically, the cost of those victories was the depopulation and ruin of the empire, particularly in the south and west. The second, the Persian attack, though brilliantly resisted in its later years by the Emperor Heraclius, left, throughout the East, a profound moral impression, which proved final and fatal in the Mohammedan attack.

No heresy has ever produced such important political results as that of Arius. While it was yet a vital doctrine, it led to the infliction of

The Vandal attack. unspeakable calamities on the empire, and, though long ago forgotten, has blasted permanently some of the fairest portions of the globe. When Count Boniface, incited by the intrigues of the patrician Ætius, invited Genseric, the King of the Vandals, into Africa, that barbarian found in the discontented sectaries his most effectual aid. In vain would he otherwise have attempted the conquest of the country with the 50,000 men he landed from Spain, A.D. 429. Three hundred Conquest of Africa. Donatist bishops, and many thousand priests, driven to despair by the persecutions inflicted by the emperor, carrying with them that large portion of the population who were Arian, were ready to look upon him as a deliverer, and therefore to afford him support. The result was the loss of Africa to the empire.

It was nothing more than might be expected that Justinian, when he found himself firmly seated on the throne of Constantinople, should make an attempt to retrieve these disasters. The principles which led The reign of Justinian. him to his scheme of legislation; to the promotion of manufacturing interests by the fabrication of silk; to the reopening of the ancient routes to India, so as to avoid transit through the Persian dominions; to his attempt at securing the carrying trade of Europe for the Greeks, also suggested the recovery of Africa. To this important step he was urged by the Catholic clergy. In a sinister but suitable manner, his reign was illustrated by his closing the schools of philosophy at Athens, ostensibly because of their affiliation to paganism, but in reality on account of his detestation of the doctrines of Aristotle and Plato; by the abolition of the consulate of Rome; by the extinction of the Roman senate, A.D. 552; by the capture and recapture five times of the Eternal City. The vanishing of the Roman race was thus marked by an extinction of the instruments of ancient philosophy and power.

The indignation of the Catholics was doubtless justly provoked by the atrocities practiced in the Arian behalf by the Vandal kings of Africa, who, among other cruelties, had attempted to silence some bishops by cutting out their tongues. To carry out Justinian's intention of the His reconquest of Africa. recovery of Africa, his general Belisarius sailed at midsummer, A.D. 533, and in November he had completed the reconquest of the country.

This was speedy work, but it was followed by fearful calamities; for Dreadful calamities produced by him. in this, and the Italian wars of Justinian, likewise undertaken at the instance of the orthodox clergy, the human race visibly diminished. It is affirmed that in the African campaign five millions of the people of that country were consumed; that during the twenty years of the Gothic War Italy lost fifteen millions; and that the wars, famines, and pestilences of the reign of Justinian diminished the human species by the almost incredible number of one hundred millions.

It is therefore not at all surprising that in such a deplorable condition men longed for a deliverer, in their despair totally regardless who he might be or from what quarter he might come. Ecclesiastical partisans had done its work. When Chosroes II., the Persian monarch, A.D. 611, commenced his attack, the persecuted sect-^{The Persian attack.}aries of Asia Minor, Syria, and Egypt followed the example of the African Arians in the Vandal invasion, and betrayed the empire. The revenge of an oppressed heretic is never scrupulous about its means of gratification. As might have been expected, the cities of Asia fell before the Persians. They took Jerusalem by assault, and with it the cross of Christ; ninety thousand Christians were^{Fall and pillage of Jerusalem.} massacred; and in its very birthplace Christianity was displaced by Magianism. The shock which religious men received through this dreadful event can hardly now be realized. The imposture of Constantine bore a bitter fruit; the sacred wood that had filled the world with its miracles was detected to be a helpless counterfeit, borne off in triumph by deriding blasphemers. All confidence in the apostolic powers of the Asiatic bishops was lost; not one of them could work a wonder for his own salvation in the dire extremity. The invaders overran Egypt as far as Ethiopia; it seemed as if the days of Cambyses^{Triumphs of Chosroes.} had come back again. The Archbishop of Alexandria found it safer to flee to Cyprus than to defend himself by spiritual artifices or to rely on prayers. The Mediterranean shore to Tripoli was subdued. For ten years the Persian standards were displayed in view of Constantinople. At one time Heraclius had determined to abandon that city, and make Carthage the metropolis of the empire. His intention was defeated by the combination of the patriarch, who dreaded the loss of his position; of the aristocracy, who foresaw their own ruin; and of the people, who would be deprived of their largesses and shows. Africa was more truly Roman than any other of the provinces; it was there that Latin was last used. But when the vengeance of the heretical sects was satisfied, they found that they had only changed the tyrant without escaping the tyranny. The magnitude of their treason was demonstrated by the facility with which Heraclius expelled the Persians as soon as they chose to assist him.

In vain, after these successes, what was passed off for the true cross was restored again to Jerusalem—the charm was broken. The Magian fire had burnt the sepulchre of Christ, and the churches of Constantine and Helena; the costly gifts of the piety of three^{The moral impression of these events.} centuries were gone into the possession of the Persian and the Jew. Never again was it possible that faith could be restored. They who had devoutly expected that the earth would open, the lightning descend, or sudden death arrest the sacrilegious invader of the holy places, and had seen that nothing of the kind ensued, dropped at once into dismal

disbelief. Asia and Africa were already morally lost. The cimeter of the Arabian soon cut the remaining tie.

Four years after the death of Justinian, A.D. 569, was born at Mecca, Birth of Mohammed. in Arabia, the man who, of all others, has exercised the greatest influence upon the human race—Mohammed, by Europeans surnamed "the Impostor." He raised his own nation from Fetichism, the adoration of a meteoric stone, and from the basest idol-worship; he preached a monotheism which quickly scattered to the winds the empty disputes of the Arians and Catholics, and irrevocably wrenched from Christianity more than half, and that by far the best half of her possessions, since it included the Holy Land, the birthplace of our faith, and Africa, which had imparted to it its Latin form. That continent, and a very large part of Asia, after the lapse of more than a thousand years, still remain permanently attached to the Arabian doctrine. With the utmost difficulty, and as if by miracle, Europe itself escaped.

Mohammed possessed that combination of qualities which more than once has decided the fate of empires. A preaching soldier, he was elo- His preaching. quent in the pulpit, valiant in the field. His theology was simple: "There is but one God." The effeminate Syrian, lost in Monothelite and Monophysite mysteries; the Athanasian and Arian, destined to disappear before his breath, might readily anticipate what he meant. Asserting that everlasting truth, he did not engage in vain metaphysics, but applied himself to improving the social condition of his people by regulations respecting personal cleanliness, sobriety, fasting, prayer. Before all other works he esteemed almsgiving and charity. With a liberality to which the world had of late become a stranger, he admitted the salvation of men of any form of faith provided they were virtuous. To the declaration that there is but one God, he added, "and Mohammed is his Prophet." Whoever desires to know whether the event of things answered to the boldness of such an announcement, will do well

and title to apostleship. to examine a map of the world in our own times. He will find the marks of something more than an imposture. To be the religious head of many empires, to guide the daily life of one third of the human race, may perhaps justify the title of a messenger of God.

Like many of the Christian monks, Mohammed retired to the solitude of the desert, and, devoting himself to meditation, fasting, and prayer, became the victim of cerebral delusion. He was visited by supernatural His delusions. appearances, mysterious voices accosting him as the Prophet of God; even the stones and trees joined in the whispering. He himself suspected the true nature of his malady, and to his wife Chadizah he expressed a dread that he was becoming insane. It is related that, as they sat alone, a shadow entered the room. "Dost thou see aught?" said Chadizah, who, after the manner of Arabian matrons, wore her veil. "I do," said the prophet. Whereupon she uncovered her face

and said, "Dost thou see it now?" "I do not." "Glad tidings to thee, O Mohammed!" exclaimed Chadizah: "it is an angel, for he has respected my unveiled face; an evil spirit would not." As his disease advanced, these spectral illusions became more frequent; from one of them he received the divine commission. "I," said his wife, "will be thy first believer;" and they knelt down in prayer together. Since that day nine thousand millions of human beings have acknowledged him to be a prophet of God.

Though, in the earlier part of his career, Mohammed exhibited a spirit of forbearance toward the Christians, it was not possible but that bitter animosity should arise, as the sphere of his influence extended. He appears to have been unable to form any other idea of the Trinity than that of three distinct gods; and the worship of the Virgin Mary, recently introduced, could not fail to come into irreconcilable conflict with his doctrine of the unity of God. To his condemnation of those Jews who taught that Ezra was the Son of God, he soon added bitter denunciations of the Oriental churches because of their idolatrous practices. The Koran is full of such rebukes: "Verily, Christ Jesus, the Son of Mary, is the apostle of God." "Believe, therefore, in God and his apostles, and say not that there are three gods. Forbear this; it will be better for you. God is but one God. Far be it from Him that he should have a son." "In the last day, God shall say unto Jesus, O Jesus, son of Mary! hast thou ever said to men, Take me and my mother for two gods beside God? He shall say, Praise be unto thee, it is not for me to say that which I ought not." Mohammed disdains all metaphysical speculations respecting the nature of the Deity, or of the origin and existence of sin, topics which had hitherto exercised the ingenuity of the East. He casts aside the doctrine of the superlative value of chastity, asserting that marriage is the natural state of man. To asceticism he opposed polygamy, permitting the practice of it in this life, and promising the most voluptuous means for its enjoyment in Paradise hereafter, especially to those who had gained the crowns of martyrdom or of victory.

Too often, in this world, success is the criterion of right. The Mohammedan appeals to the splendor and rapidity of his career as a proof of the divine mission of his apostle. It may, however, be permitted to a philosopher, who desires to speak of the faith of so large a portion of the human race with profound respect, to examine what were some of the secondary causes which led to so great a political result. From its most glorious seats Christianity was forever expelled: from Palestine, the scene of its most sacred recollections; from Asia Minor, that of its first churches; from Egypt, whence issued the great doctrine of Trinitarian orthodoxy; from Carthage, who imposed her belief on Europe.

His gradual antagonism to Christianity.

Institution of polygamy.

Results of his life.

It is altogether a misconception that the Arabian progress was due to the sword alone. The sword may change an acknowledged national creed, but it can not affect the consciences of men. Profound though its argument is, something far more profound was demanded before Mohammedanism pervaded the domestic life of Asia and Africa, before Arabic became the language of so many different nations.

The explanation of this political phenomenon is to be found in the social condition of the conquered countries. The influences of religion in them had long ago ceased; it had become supplanted by theology—a theology so incomprehensible that even the wonderful capabilities of the Greek language were scarcely enough to meet its subtle demands; the Latin and the barbarian dialects were out of the question. How was it possible that unlettered men, who with difficulty can be made to apprehend obvious things, should understand such mysteries? Yet they were taught that on those doctrines the salvation or damnation of the human race depended. They saw that the clergy had abandoned the guidance of the individual life of their flocks; that personal virtue or vice were no longer considered; that sin was not measured by evil works, but by the degrees of heresy. They saw that the ecclesiastical chiefs of Rome, Constantinople, and Alexandria were engaged in a desperate struggle for supremacy, carrying out their purposes by weapons and in ways revolting to the conscience of man. What an example when bishops are concerned in assassinations, poisonings, adulteries, blindings, riots, treasons, civil war; when patriarchs and primates are excommunicating and anathematizing one another in their rivalries for earthly power, bribing eunuchs with gold, and courtesans and royal females with concessions of episcopal love, and influencing the decisions of councils asserted to speak with the voice of God by those base intrigues and sharp practice resorted to by demagogues in their packed assemblies! Among legions of monks, who carried terror into the imperial armies and riot into the great cities, arose hideous clamors for theological dogmas, but never a voice for intellectual liberty or the outraged rights of man. In such a state of things, what else could be the result than disgust or indifferentism? Certainly men could not be expected, if a time of necessity arose, to give help to a system that had lost all hold on their hearts.

When, therefore, in the midst of the wrangling of sects, in the incomprehensible jargon of Arians, Nestorians, Eutychians, Monothelites, Monophysites, Mariolatrists, and an anarchy of countless disputants, there sounded through the air, not the miserable voice of the intriguing majority, but the dread battle-cry, "There is but one God," enough to startle the Saracen armies, is it surprising that all Asia and Africa

Civil weakness
produced by ec-
clesiastical de-
moralization.

fell away? In better times patriotism is too often made subordinate to religion; in those times it was altogether dead.

Scarcely was Mohammed buried when his religion manifested its inevitable destiny of overpassing the bounds of Arabia. The prophet himself had declared war against the Roman empire, and, at the head of 30,000 men, advanced toward Damascus, but his purpose was frustrated by ill health. His successor, Abu-Bekr, the first khalif, attacked both the Romans and the Persians. The invasion of Egypt occurred A.D. 638, the Arabs being invited by the Copts. In a few months the Mohammedan general Amrou wrote to his master, the khalif, "I have taken Alexandria, the great city of the West." Treason had done its work, and Egypt was thoroughly subjugated. To complete the conquest of Christian Africa, many attacks were nevertheless required. Abdallah penetrated nine hundred miles to Tripoli, but returned. Nothing more was done for twenty years, because of the disputes that arose about the succession to the khalifate. Then Moawiyah sent his lieutenant, Akbah, who forced his way to the Atlantic, but was unable to hold the long line of country permanently. Again operations were undertaken by Abdalmalek, the sixth of the Ommiade dynasty, A.D. 698; his lieutenant, Hassan, took Carthage by storm and destroyed it, the conquest being at last thoroughly completed by Musa, who enjoyed the double reputation of a brave soldier and an eloquent preacher. And thus this region, distinguished by its theological acumen, to which modern Europe owes so much, was forever silenced by the cimeter. It ceased to preach and was taught to pray.

In this political result—the Arabian conquest of Africa—there can be no doubt that the same element which exercised in the Vandal invasion so disastrous an effect, came again into operation. But, if treason introduced the enemy, polygamy secured the conquest. In Egypt the Greek population was orthodox, the natives were Jacobites, more willing to accept the Monotheism of Arabia than to bear the tyranny of the orthodox. The Arabs, carrying out their policy of ruining an old metropolis and erecting a new one, dismantled Alexandria; and thus the patriarchate of that city ceased to have any farther political existence in the Christian system, which for so many ages had been disturbed by its intrigues and violence. The irresistible effect of polygamy in consolidating the new order of things soon became apparent. In little more than a single generation the children of the north of Africa were speaking Arabic.

During the khalifates of Abu-Bekr and Omar, and within twelve years after the death of Mohammed, the Arabians had reduced thirty-six thousand fortified places in Persia, Syria, Africa, and had destroyed four thousand churches, replacing them with fourteen hundred mosques. In a few years they had extended their rule a

Conquest of
Africa.

Conquest of Syr-
ia and Persia.

thousand miles east and west. In Syria, as in Africa, their early successes were promoted in the most effectual manner by treachery. Damascus was taken after a siege of a year. At the battle of Aiznadin, A.D. 633, Kalid, "the Sword of God," defeated the army of Heraclius, the Romans losing fifty thousand men; and this was soon followed by the fall of the great cities, Jerusalem, Antioch, Aleppo, Tyre, Tripoli. On a red camel, which carried a bag of corn and one of dates, a wooden dish, and a leather water-bottle, the Khalif Omar came from Medina to take formal possession of Jerusalem. He entered the Holy City riding by the side of the Christian patriarch Sophronius, whose capitulation showed that his confidence was completely lost. The successor of Mohammed and the Roman emperor both correctly judged how important in the eyes of the nations was the possession of Jerusalem. A belief that it would be a proof of the authenticity of Mohammedanism led Omar to order the Saracen troops to take it at any cost.

The conquest of Syria and the seizure of the Mediterranean ports gave to the Arabs the command of the sea. They soon took Rhodes and Cyprus. The battle of Cadesia and sack of Ctesiphon, the metropolis of Persia, decided the fate of that kingdom. Syria was thus completely reduced under Omar, the second khalif; Persia under Othman, the third.

If it be true that the Arabs burned the library of Alexandria, there was at that time danger that their fanaticism would lend itself to the Byzantine system; but it was only for a moment that the khalifs fell into this evil policy. They very soon became distinguished patrons of learning. It has been said that they overran the domains of science as quickly as they overran the realms of their neighbors. It became customary for the first dignities of the state to be held by men distinguished for their erudition. Some of the maxims current show how much literature was esteemed. "The ink of the doctor is equally valuable with the blood of the martyr." "Paradise is as much for him who has rightly used the pen as for him who has fallen by the sword." "The world is sustained by four things only: the learning of the wise, the justice of the great, the prayers of the good, and the valor of the brave." Within twenty-five years after the death of Mohammed, under Ali, the fourth khalif, the patronage of learning had become a settled principle of the Mohammedan system. Under the khalifs of Bagdad this principle was thoroughly carried out. The cultivators of mathematics, astronomy, medicine, and general literature abounded in the court of Almansor, who invited all philosophers, offering them his protection, whatever their religious opinions might be. His successor, Alraschid, is said never to have ruled without a retinue of a hundred learned men. This was followed by an edict that no mosque should be built without a school attached to it. It was he who

The Arabs become a learned nation.

confided the superintendence of his schools to the Nestorian Masué. His successor, Almainon, was brought up among Greek and Persian mathematicians, philosophers, and physicians. They continued his associates all his life. By these sovereigns the establishment of libraries was incessantly prosecuted, and the collection and copying of manuscripts properly organized. In all the great cities schools abounded; in Alexandria there were not less than twenty. As might be expected, this could not take place without exciting the indignation of the old fanatical party, who not only remonstrated with Almainon, but threatened him with the vengeance of God for thus disturbing the faith of the people. However, what had thus been commenced as a matter of profound policy soon grew into a habit, and it was observed that whenever an emir managed to make himself independent, he forthwith opened academies.

The Arabs furnish a striking illustration of the successive phases of national life. They first come before us as fetich worship-
Rapidity of their intellectual development.
 ers, having their age of credulity, their object of superstition being the black stone in the temple at Mecca. They pass through an age of inquiry, rendering possible the advent of Mohammed. Then follows their age of faith, the blind fanaticism of which quickly led them to overspread all adjoining countries; and at last comes their period of maturity, their age of reason. The striking feature of their movement is the quickness with which they passed through these successive phases, and the intensity of their national life.

This singular rapidity of national life was favored by very obvious circumstances. The long and desolating wars between Heraclius and Chosroes had altogether destroyed the mercantile relations of the Roman and Persian empires, and had thrown the entire Oriental and African trade into the hands of the Arabs. As a merchant Mohammed himself makes his first appearance. The first we hear in his history are the journeys he has made as the factor of the wealthy Chadizah. In these expeditions with the caravans to Damascus and other Syrian cities, he was brought in contact with Jews and men of affairs, who, from the nature of their pursuits, were of more enlarged views than mere Arab chieftains or the petty tradesmen of Arab towns. Through such agency the first impetus was given. As to the rapid success, its
Causes of the spread of Mohammedanism.
 causes are in like manner so plain as to take away all surprise. It is no wonder that in fifty years, as Abderrahman wrote to the khalif, not only had the tribute from the entire north of Africa ceased, through the population having become altogether Mohammedan, but that the Moors boasted an Arab descent as their greatest glory. For, besides the sectarian animosities on which I have dwelt as facilitating the first conquest of the Christians, and the dreadful shock that had been given by the capture of the Holy City, Jerusalem, the in-

sulting and burning the sepulchre of our Savior, and the carrying away of his cross as a trophy by the Persians, there were other very powerful causes. For many years the taxation imposed by the Emperors of Constantinople on their subjects in Asia and Africa had been not only excessive and extortionate, but likewise complicated. This the khalifs replaced by a simple, well-defined tribute of far less amount. Thus, in the case of Cyprus, the sum paid to the khalif was only half of what it had been to the emperor; and, indeed, the lower orders were never made to feel the bitterness of conquest; the blows fell on the ecclesiastics, not on the population, and between them there was but little sympathy. In the eyes of the ignorant nations the prestige of the patriarchs and bishops was utterly destroyed by their detected helplessness to prevent the capture and insult of the sacred places. On the payment of a trifling sum the conqueror guaranteed to the Christian and the Jew absolute security for their worship. An equivalent was given for a price. Religious freedom was bought with money. Numerous instances might be given of the scrupulous integrity with which the Arab commanders complied with their part of the contract. The example set by Omar on the steps of the Church of the Resurrection was followed by Moawiyah, who actually rebuilt the church of Edessa for his Christian subjects; and by Abdulmalek, who, when he had commenced converting that of Damascus into a mosque, forthwith desisted on finding that the Christians were entitled to it by the terms of the capitulation. If these things were done in the first fervor of victory, the principles on which they depended were all the more powerful after the Arabs had become tinctured with Nestorian and Jewish influences, and were a learned nation. It is related of Ali, the son-in-law of Mohammed, and the fourth successor in the khalifate, that he gave himself up to letters. Among his sayings are recorded such as these: "Eminence in science is the highest of honors;" "He dies not who gives life to learning;" "The greatest ornament of a man is erudition." When the sovereign felt and expressed such sentiments, it was impossible but that a liberal policy should prevail.

Besides these there were other incentives not less powerful. To one whose faith sat lightly upon him, or who valued it less than the tribute to be paid, it only required the repetition of a short sentence acknowledging the unity of God and the divine mission of the prophet, and he forthwith became, though a captive or a slave, the equal and friend of his conqueror. Doubtless many thousands were under these circumstances carried away. As respects the female sex, the Arab system was very far from being oppressive; some have even asserted that "the Christian women found in the seraglios a delightful retreat." But above all, polygamy acted actually in consolidating the conquests; the large families—some are mentioned of more

than one hundred and eighty children—compressed into the course of a few years events that would otherwise have taken many generations for their accomplishment. These children gloried in their Arab descent, and, being taught to speak the language of their conquering fathers, became to all intents and purposes Arabs. This diffusion of the language was sometimes expedited by the edicts of the khalifs; thus Alwalid I. prohibited the use of Greek, directing the Arabic to be employed in its stead.

If thus without difficulty we recognize the causes which led to the rapid diffusion of the Arab power, we also without difficulty recognize those which led to its check and eventual dissolution. Arab conquest implied, from the scale on which it was pursued, the forth-<sup>Causes of the arrest of Moham-
medanism.</sup> going of the whole nation. It could only be accomplished, and in a temporary manner sustained, by an excessive and incessant drain of the native Arab population. That immobility, or, at the best, slow progress the nation had for so many ages displayed, was at an end, society was moved to its foundations, a fanatical delirium possessed it, the greatest and boldest enterprises were entered upon without hesitation, the wildest hopes or passions of men might be speedily gratified, wealth and beauty were the tangible rewards of valor in this life, to say nothing of Paradise in the next. But such an outrush of a nation in all directions implied the quick growth of diverse interests and opposing policies. The necessary consequence of the Arab system was subdivision and breaking up. The circumstances of its growth ren-<sup>Necessary disintegration of the
Arab system.</sup> dered it certain that a decomposition would take place in the political, and not, as has been in the case of the ecclesiastical Roman system, in the theological direction. All this is illustrated both in the earlier and later Saracenic history.

War makes a people run through its phases of existence fast. It would have taken the Arabs many thousand years to have<sup>Effect on the low
Arab class.</sup> advanced intellectually as far as they did in a single century, had they, as a nation, remained in profound peace. They did not merely shake off that dead weight which clogs the movement of a nation—its inert mass of common people; they converted that mass into a living force. National progress is the sum of individual progress; national immobility the result of individual quiescence. Arabian life was run through with rapidity, because an unrestrained career was opened to every man; and yet, quick as the movement was, it manifested all those unavoidable phases through which, whether its motion be swift or slow, humanity must unavoidably pass.

Arabian influence, thus imposing itself on Africa and Asia by military successes, and threatening even Constantinople, rested essentially on an intellectual basis, the value of which it is needful<sup>Review of
the Koran.</sup>

for us to consider. The Koran, which is that basis, has exercised great control over the destinies of mankind, and still serves as a rule of life to a very large portion of our race. Considering the asserted origin of this book—indirectly from God himself—we might justly expect that it would bear to be tried by any standard that man can apply, and vindicate its truth and excellence in the ordeal of human criticism. In our estimate of it we must constantly bear in mind that it does not profess to be successive revelations made at intervals of ages and on various occasions, but a complete production delivered to one man. We ought, therefore, to look for universality, completeness, perfection. We might expect that it would present us with just views of the nature and position of this world in which we live, and that, whether dealing with the spiritual or the material, it would put to shame the most celebrated productions of human genius, as the magnificent mechanism of the heavens and the beautiful living forms of the earth are superior to the vain contrivances of man. Far in advance of all that has been written by the sages of India or the philosophers of Greece on points connected with the origin, nature, and destiny of the universe, its dignity of conception and excellence of expression should be in harmony with the greatness of the subject with which it is concerned.

Its asserted homogeneity and completeness.

The characters it ought, therefore, to have presented.

We might expect that it should propound with authority, and definitively settle those all-important problems which have exercised the mental powers of the ablest men of Asia and Europe for so many centuries, and which are at the foundation of all faith and all philosophy; that it should distinctly tell us in unmistakable language what is God, what is the world, what is the soul, and whether man has any criterion of truth; that it should explain to us how evil can exist in a world the Maker of which is omnipotent and altogether good; that it should reveal to us in what the affairs of men are fixed by Destiny, in what by free-will; that it should teach us whence we came, what is the object of our continuing here, what is to become of us hereafter. And, since a written word claiming a divine origin must necessarily accredit itself even to those most reluctant to receive it, its internal evidences becoming stronger and not weaker with the strictness of the examination to which they are submitted, it ought to deal with those things that may be demonstrated by the increasing knowledge and genius of man, anticipating therein his conclusions. Such a work, noble as may be its origin, must not refuse, but court the test of natural philosophy, regarding it not as an antagonist, but as its best support. As years pass on, and human science becomes more exact and more comprehensive, its conclusions must be found in unison therewith. When occasion arises, it should furnish us at least the foreshadowings of the great truths discovered by astronomy and geology, not offering for them the wild fictions

of earlier ages, inventions of the infancy of man. It should tell us how suns and worlds are distributed in infinite space, and how, in their successions, they come forth in limitless time. It should say how far the dominion of God is carried out by law, and what is the point at which it is his pleasure to resort to his own good Providence or his arbitrary will. How grand the description of this magnificent universe written by the Omnipotent hand! Of man it should set forth his relations to other living beings, his place among them, his privileges, and responsibilities. It should not leave him to grope his way through the vestiges of Greek philosophy, and to miss the truth at last, but it should teach him wherein true knowledge consists, anticipating the physical science, physical power, and physical well-being of our own times, nay, even unfolding for our benefit things that we are still ignorant of. The discussion of subjects, so many and so high, is not outside the scope of a work of such pretensions. Its manner of dealing with them is the only criterion it can offer of its authority to succeeding times.

Tried by such a standard, the Koran altogether fails. In its philosophy it is incomparably inferior to the writings of Chakia Mouni, the founder of Buddhism; in its science it is absolutely worthless. Defects of the Koran. In speculative or doubtful things it is copious enough; but in the exact, where a test can be applied to it, it totally fails. Its astronomy, cosmogony, physiology, are so puerile as to invite our mirth if the occasion did not forbid. They belong to the old times of the world, the morning of human knowledge. The earth is firmly balanced in its seat by the weight of the mountains; the sky is supported over it like a dome, and we are instructed in the wisdom and power of God by being told to find a crack in it if we can. Ranged in stories, seven in number, are the heavens, the highest being the habitation of God, whose throne—for the Koran does not reject Assyrian ideas—is sustained by winged animal forms. The shooting stars are pieces of red-hot stone thrown by angels at impure spirits when they approach too closely. Of God the Koran is full of praise, setting forth, often in not unworthy imagery, his majesty. Though it bitterly denounces those who give him any equals, and assures them that their sin will its God. never be forgiven; that in the judgment-day they must answer the fearful question, "Where are my companions about whom ye disputed?" though it inculcates an absolute dependence on the mercy of God, and denounces as criminals all those who make a merchandise of religion, its ideas of the Deity are altogether anthropomorphic. He is only a gigantic man living in a paradise. In this respect, though exceptional passages might be cited, the reader rises from a perusal of the 114 chapters of the Koran with a final impression that they have given him low and unworthy thoughts; nor is it surprising that one of the Mohammedan sects reads it in such a way as to find no difficulty in asserting that,

"from the crown of the head to the breast God is hollow, and from the breast downward he is solid; that he has curled black hair, and roars like a lion at every watch of the night." The unity asserted by Mohammed is a unity in special contradistinction to the Trinity of the Christians, and the doctrine of a divine generation. Our Savior is never called the Son of God, but always the son of Mary. Throughout there is a perpetual acceptance of the delusion of the human destiny of the universe. As to man, Mohammed is diffuse enough respecting a future state, speaking with clearness of a resurrection, the judgment-day, Paradise, the torment of hell, the worm that never dies, the pains that never end; but, with all this precise description of the future, there are many errors as to the past. If modesty did not render it unsuitable to speak of such topics here, it might be shown how feeble is his physiology when he has occasion to allude to the origin or generation of man. He is hardly advanced beyond the ideas of Thales. One who is so unreliable a guide as to things that are past, can not be very trustworthy as to events that are to come.

Of the literary execution of his work, it is, perhaps, scarcely possible to judge fairly from a translation. It is said to be the oldest prose composition among the Arabs, by whom Mohammed's boast of the unapproachable excellence of his work is almost universally sustained; but it must not be concealed that there have been among them very learned men who have held it in light esteem. Its most celebrated passages, as those on the nature of God, in Chapters II., XXIV., will bear no comparison with parallel ones in the Psalms and Book of Job. In the narrative style, the story of Joseph, in Chapter XII., compared with the same incidents related in Genesis, shows a like inferiority. Mohammed also adulterates his work with many Christian legends, derived probably from the apocryphal gospel of St. Barnabas; he mixes with many of his own inventions the scripture account of the temptation of Adam, the Deluge, Jonah and the whale, enriching the whole with stories like the later Night Entertainments of his country, the seven sleepers, Gog and Magog, and all the wonders of genii, sorcery, and charms.

An impartial reader of the Koran may doubtless be surprised that so feeble a production should serve its purpose so well. But the theory of religion is one thing, the practice another. The Koran abounds in excellent moral suggestions and precepts; its composition is so fragmentary that we can not turn to a single page without finding maxims of which all men must approve. This fragmentary construction yields texts, and mottoes, and rules complete in themselves, suitable for common use of the incidents of life. There is a perpetual insist of prayer, an inculcation of mercy, almsgiving, j

Its views
of man.

Its literary inferiority compared
with the Bible.

Causes of its
surprising influence.

tions respecting conduct both social and domestic, debts, witnesses, marriage, children, wine, and the like; above all, a constant stimulation to do battle with the infidel and blasphemer. For life as it passes in Asia, there is hardly a condition in which passages from the Koran can not be recalled suitable for instruction, admonition, consolation, encouragement. To the Asiatic and to the African, such devotional fragments are of far more use than any sustained theological doctrine. The mental constitution of Mohammed did not enable him to handle important philosophical questions with the well-balanced ability of the great Greek and Indian writers, but he has never been surpassed in adaptation to the spiritual wants of humble life, making even his fearful fatalism administer thereto. A pitiless destiny is awaiting us; yet the prophet is uncertain what it may be. "Unto every nation a fixed time is decreed. Death will overtake us even in lofty towers, but God only knoweth the place in which a man shall die." After many an admonition of the resurrection and the judgment-day, many a promise of Paradise and threat of hell, he plaintively confesses, "I do not know what will be done with you or me hereafter."

The Koran thus betrays a human, and not a very noble intellectual origin. It does not, however, follow that its author was, as is ^{its true nature.} often asserted, a mere impostor. He reiterates again and again, I am nothing more than a public preacher. He defends, not always without acerbity, his work from those who, even in his own life, stigmatized it as a confused heap of dreams, or, what is worse, a forgery. He is not the only man who has supposed himself to be the subject of supernatural and divine communications, for this is a condition of disease to which any one, by fasting and mental anxiety, may be reduced.

In what I have thus said respecting a work held by so many millions of men as a revelation from God, I have endeavored to speak with respect, and yet with freedom, constantly bearing in mind how deeply to this book Asia and Africa are indebted for daily guidance, how deeply Europe and America for the light of science.

As might be expected, the doctrines of the Koran have received many fictitious additions and sectarian interpretations in the course of ages. In the popular superstition angels and genii largely figure. ^{Popular Mohammedanism.} The latter, being of a grosser fabric, eat, drink, propagate their kind, are of two sorts, good and bad, and existed long before men, having occupied the earth before Adam. Immediately after death, two greenish, livid angels, Monkir and Nekkar, examine every corpse as to its faith in God and Mohammed; but the soul, having been separated from the body by the angel of death, enters upon an intermediate state, awaiting the resurrection. There is, however, much diversity of opinion as to its precise disposal before the judgment-day: some think that it hovers near the grave; some, that it sinks into the well Zemzem;

some, that it retires into the trumpet of the Angel of the Resurrection; the difficulty apparently being that any final disposal before the day of judgment would be anticipatory of that great event, if, indeed, it would not render it needless. As to the resurrection, some believe it to be merely spiritual, others corporeal; the latter asserting that the os coe-cygis, or last bone of the spinal column, will serve, as it were, as a germ, and that, vivified by a rain of forty days, the body will sprout from it. Among the signs of the approaching resurrection will be the rising of the sun in the West. It will be ushered in by three blasts of a trumpet: the first, known as the blast of consternation, will shake the earth to its centre, and extinguish the sun and stars; the second, the blast of examination, will annihilate all material things except Paradise, hell, and the throne of God. Forty years subsequently, the angel Israfil will sound the blast of resurrection. From his trumpet there will be blown forth the countless myriads of souls who have taken refuge therein or lain concealed. The day of judgment has now come. The Koran contradicts itself as to the length of this day; in one place making it a thousand, in another fifty thousand years. Most Mohammedans incline to adopt the longer period, since angels, genii, men, and animals have to be tried. As to men, they will rise in their natural state, but naked; white winged camels, with saddles of gold, awaiting the saved. When the partition is made, the wicked will be oppressed with an intolerable heat, caused by the sun, who, having been called into existence again, will approach within a mile, provoking a sweat to issue from them, which, according to their demerits, will immerse them from the ankles to the mouth; but the righteous will be screened by the shadow of the throne of God. The judge will be seated in the clouds, the books open before him, and every thing in its turn called on to account for its deeds. For the greater dispatch, the angel Gabriel will hold forth his balance, one scale of which hangs over Paradise and one over hell. In these all works are weighed. As soon as the sentence is delivered, the assembly, in a long file, will pass over the bridge Al-Sirat. It is as sharp as the edge of a sword, and laid over the mouth of hell. Mohammed and his followers will successfully pass the perilous ordeal; but the sinners, giddy with terror, will drop into the place of torment. The blessed will receive their first taste of happiness at a pond which is supplied by silver pipes from the river Al-Cawthor. The soil of Paradise is of musk. Its rivers tranquilly flow over pebbles of rubies and emeralds. From tents of hollow pearls, the Houris, or girls of Paradise, will come forth, attended by troops of beautiful boys. Each saint will have eighty thousand servants and seventy-two girls. To these, some of the more merciful Mussulmans add the wives they have had upon earth; but the grimly orthodox assert that hell is already nearly filled with women. How should it be otherwise when they are not permitted to pray in a

mosque upon earth? I have not space to describe the silk brocades, the green clothing, the soft carpets, the banquets, the perpetual music and songs. From the glorified body all impurities will escape, not as they did during life, but in a fragrant perspiration of camphor and musk. No one will complain I am weary; no one will say I am sick.

From the contradictions, puerilities, and impossibilities indicated in the preceding paragraphs, it may be anticipated that the faith of Mohammed has been broken into many sects. Of such it is said The Mohammedan sects. that not less than seventy-three may be numbered. Some, as the Sonnites, are guided by traditions; some occupy themselves with philosophical difficulties, the existence of evil in the world, the attributes of God, absolute predestination and eternal damnation, the invisibility and non-corporeality of God, his capability of local motion: these and other such topics furnish abundant opportunity for sectarian dispute. As if to show how the essential principles of the Koran may be departed from by those who still profess to be guided by it, there are, among the Shiites, those who believe that Ali was an incarnation of God; that he was in existence before the creation of things; that he never died, but ascended to heaven, and will return again in the clouds to judge the world. But the great Mohammedan philosophers, simply accepting the doctrine of the oneness of God as the only thing of which man can be certain, look upon all the rest as idle fables, having, however, this political use, that they furnish contention, and therefore occupation to disputatious sectarians, and consolation to illiterate minds.

Thus settled on the north of Africa the lurid form of the Arabian crescent, one horn reaching to the Bosphorus and one pointing beyond the Pyrenees. For a while it seemed that the portentous meteor would increase to the full, and that all Europe would be enveloped. Christianity had lost forever the most interesting countries over Effect of Mohammedanism on Christianity. which her influence had once spread, Africa, Egypt, Syria, with the Holy Land, Asia Minor, Spain. She was destined, in the end, to lose in the same manner the metropolis of the East. In exchange for these ancient and illustrious regions, she fell back on Gaul, Germany, Britain, Scandinavia. In those savage countries, what were there to be offered as substitutes for the great capitals, illustrious in ecclesiastical history, forever illustrious in the records of the human race—Carthage, Alexandria, Jerusalem, Antioch, Constantinople? It was an evil exchange. The labors, intellectual and physical, of which those cities had once been the scene; the preaching, and penances, and prayers so lavishly expended in them, had not produced the anticipated, the asserted result. In theology and morality the people had pursued a descending course. Patriotism was extinct. They surrendered the state to preserve their sect; their treason was rewarded by subjugation.

From these melancholy events we may learn that the principles on which the moral world is governed are analogous to those which obtain in the physical. It is not by incessant divine interpositions, which produce breaches in the continuity of historic action; it is not by miracles and prodigies that the course of events is determined; but affairs follow each other in the relation of cause and effect. The maximum development of early Christianity coincided with the boundaries of the Roman empire; the ecclesiastical condition depended on the political, and, indeed, was its direct consequence and issue. The loss of Africa and Asia was, in like manner, connected with the Arabian movement, though it would have been easy to prevent that catastrophe, and to preserve those continents to the faith by the smallest of those innumerable miracles of which Church history is full, and which were often performed on unimportant and obscure occasions. But not even one such miracle was vouchsafed, though an angel might have worthily descended. I know of no event in the history of our race on which a thoughtful man may more profitably meditate than on the loss of Africa and Asia. It may remove from his mind many erroneous ideas, and lead him to take a more elevated, and more philosophical, and, therefore, more correct view of the course of earthly events.

CHAPTER XII.

THE AGE OF FAITH IN THE WEST.

The Age of Faith in the West is marked by Paganism.—The Arabian military Attacks produce the Isolation and permit the Independence of the Bishop of Rome.

GREGORY THE GREAT organizes the Ideas of his Age, materializes Faith, allies it with Art, rejects Science, and creates the Italian Form of Religion.

An Alliance of the Papacy with France diffuses that Form.—Political History of the Agreement and Conspiracy of the Frankish Kings and the Pope.—The resulting Consolidation of the new Dynasty in France, and Diffusion of Roman Ideas.—Conversion of Europe.

The Value of the Italian Form of Religion determined from the papal Biography.

FROM the Age of Faith in the East, I have now to turn to the Age of Faith in the West. The former, as we have seen, ended prematurely, through a metamorphosis of the populations by military operations, conquests, polygamy; the latter, under more favorable circumstances, gradually completed its predestined phases and, after the lapse of many centuries, passed into the Age of Reason.

If so many recollections of profound interest cluster round Jerusalem, "the Holy City" of the East, many scarcely inferior are connected with Rome, "the Eternal City" of the West.

The Byzantine system, which, having originated in the policy of an

ambitious soldier struggling for supreme power, and in the devices of ecclesiastics intolerant of any competitors, had spread itself all over the eastern and southern portions of the Roman empire, and, with its hatred of human knowledge and degraded religious ideas and practices, had been adopted at last even in Italy. Not by the Romans, for they had ceased to exist, but by the medley of Goths and half-breeds, the occupants of that peninsula. Gregory the Great is the incarnation of the ideas of this debased population. That evil system, so carefully nurtured by Constantine and cherished by all the Oriental bishops, had been cut down by the axe of the Vandal, the Persian, the Arab, in its native seats, but the offshoot of it that had been planted in Rome developed spontaneously with unexpected luxuriance, and cast its dark shadow over Europe for many centuries. He who had known what religion was in the apostolic days, might look with boundless surprise on what was now ingrafted upon it, and was passing under its name.

Is essentially marked by the paganization of religion.

In the last chapter we have seen how, through the Vandal invasion, Africa was lost to the empire—a dire calamity, for, of all the provinces, it had been the least expensive and the most productive; it yielded men, money, and, what was perhaps of more importance, corn for the use of Italy. A sudden stoppage of the customary supply rendered impossible the usual distributions in Rome, Ravenna, Milan. A famine fell upon Italy, bringing in its train an inevitable diminution of the population. To add to the misfortunes, Attila, the King of the Huns, or, as he called himself, “the Scourge of God,” invaded the empire. The battle of Chalons, the convulsive death-throe of the Roman empire, arrested his career, A.D. 451.

Effects of the loss of Africa on events in Italy.

Four years after this event, through intrigues in the imperial family, Genseric, the Vandal king, was invited from Africa to Rome. The atrocities which of old had been practiced against Carthage under the auspices of the senate were now avenged. For fourteen days the Vandals sacked the city, perpetrating unheard-of cruelties. Their ships, brought into the Tiber, enabled them to accomplish their purpose of pillage far more effectually than would have been possible by any land expedition. The treasures of Rome, with multitudes of noble captives, were transported to Carthage. In twenty-one years after this time, A.D. 476, the Western Empire became extinct.

Fall and pillage of Rome.

Thus the treachery of the African Arians not only brought the Vandals into the most important of all the provinces, so far as Italy was concerned; it also furnished an instrument for the ruin of Rome. But hardly had the Emperor Justinian reconquered Africa when he attempted the subjugation of the Goths now holding possession of Italy. His general Belisarius captured Rome, Dec. 10, A.D. 556. In the military operations ensuing with Vitiges,

Effects of the wars of Justinian.

Italy was devastated, the population sank beneath the sword, pestilence, famine. In all directions the glorious remains of antiquity were destroyed; statues, as those of the Mole of Adrian, were thrown upon the besiegers of Rome. These operations closed by the surrender of Vitiges to Belisarius at the capture of Ravenna.

But, as soon as the military compression was withdrawn, revolt broke out. Rome was retaken by the Goths; its walls were razed; for forty days it was deserted by its inhabitants, an emigration that in the end proved its ruin. Belisarius, who had been sent back by the emperor, re-entered it, but was too weak to retain it. For four years Italy was ravaged by the Franks and the Goths. At last Justinian sent the eunuch Narses with a well-appointed army. The Ostrogothic monarchy was overthrown, and the emperor governed Italy by his exarchs at Ravenna.

But what was the cost of all this? We may reject the statement previously made, that Italy lost fifteen millions of inhabitants, on the ground that such computations were beyond the ability of the survivors, but, from the asserted number, we may infer that they had passed through a horrible catastrophe. In other directions the relics of civilization were fast disappearing; the valley of the Danube had relapsed into a barbarous state; the African shore had become a wilderness;

Debased ideas of the incoming Age of Faith. Italy a hideous desert; and the necessary consequence of the extermination of the native Italians by war, and their replacement by barbarous adventurers, was the falling of the sparse population of that peninsula into a lower psychical state. It was ready for the materialized religion that soon ensued. An indelible aspect was stamped on the incoming Age of Faith. The East and the West had equally displayed the imbecility of ecclesiastical rule. Of both, the Holy City had fallen; Jerusalem had been captured by the Persian and Arab, Rome had been sacked by the Vandal and the Goth.

But, for the proper description of the course of affairs, I must retrace my steps a little. In the important political events coinciding with the death of Leo the Great, and the constitution of the kingdom of Italy by the barbarian Odoacer, A.D. 476-490, the bishops of Rome seem to have

Steady progress of Rome to supremacy. taken but little interest. Doubtless, on one side, they perceived the transitory nature of such incidents, and, on the other, clearly saw for themselves the road to lasting spiritual domination. The Christians every where had long expressed a total carelessness for the fate of old Rome; and in the midst of her ruins the popes were incessantly occupied in laying deep the foundations of their power. Though it mattered little to them who was the temporal ruler of Italy, they were vigilant and energetic in their relations with their great competitors, the bishops of Constantinople and Alexandria. It had become clear that Christendom must have a head; and that headship, once defi-

nately settled, implied the eventual control over the temporal power. Of all objects of human ambition, that headship was best worth struggling for.

Steadily pursuing every advantage as it arose, Rome inexorably insisted that her decisions should be carried out in Constantinople itself. This was the case especially in the affair of Acacius, the bishop of that city, who, having been admonished for his acts by Felix, the Bishop of Rome, was finally excommunicated. A difficulty arose as to the manner in which the process should be served; but an adventurous monk fastened it to the robe of Acacius as he entered the church. Acacius, undismayed, proceeded with his services, and, pausing deliberately, ordered the name of Felix, the Bishop of Rome, to be struck from the roll of bishops in communion with the East. Constantinople and Rome thus mutually excommunicated one another. It is in reference to this affair that Pope Gelasius, addressing the emperor, says: "There are two powers which rule the world, the imperial and pontifical. Her attitude toward the emperor. You are the sovereign of the human race, but you bow your neck to those who preside over things divine. The priesthood is the greater of the two powers; it has to render an account in the last day for the acts of kings." This is not the language of a feeble ecclesiastic, but of a pontiff who understands his power.

The conquest of Italy by Theodoric, the Ostrogoth, A.D. 493, gave to the bishops of Rome an Arian sovereign, and presented to the world the anomaly of a heretic appointing God's vicar upon earth. The Gothic conquest gives the pope an Arian master. There was a contested election between two rival candidates, whose factions, emulating the example of the East, filled the city with murder. The Gothic monarch ordered that he who had most suffrages, and had been first consecrated, should be acknowledged. In this manner Symmachus became pope.

Hormisdas, who succeeded Symmachus, renewed the attempt to compel the Eastern emperor, Anastasius, to accept the degradation of Acacius and his party, and to enforce the assent of all his clergy thereto, but in vain. On the accession of Justin to the imperial throne, Rome at last carried her point; all her conditions were admitted; the schism was ended in the humiliation of the Bishop of Constantinople, it was said, through the orthodoxy of the emperor. But very soon began to appear unmistakable indications that for this religious victory a temporal equivalent had been given. Conspiracies were detected in Rome against Theodoric, the Gothic king; and rumors were The emperor and pope conspire against him. whispered about that the arms of Constantinople would before long release Italy from the heretical yoke of the Arian. There can be no doubt that Theodoric detected the treason. It was an evil The Gothic king detects them. reward for his impartial equity. At once he disarmed the population of Rome. From being a merciful sovereign, he exhibited an

awful vengeance. It was in these transactions that Boethius, the philosopher, and Symmachus, the senator, fell victims to his wrath. The pope, John, himself was thrown into prison, and there miserably died. In his remonstrances with Justin, the great barbarian monarch displayed sentiments far above his times, yet they were the sentiments that had hitherto regulated his actions. "To pretend to a dominion over the conscience is to usurp the prerogative of God. By the nature of things, the power of sovereigns is confined to political government. They have no right of punishment but over those who disturb the public peace. The most dangerous heresy is that of a sovereign who separates himself from part of his subjects because they believe not according to his belief."

Theodoric had been but a few years dead—his soul was seen by an orthodox hermit carried by devils into the crater of the volcano of Lipari, which was considered to be the opening into hell—when the invasion of Italy by Justinian showed how well-founded his suspicions had been. Rome was, however, very far from receiving the advantages she had expected; the inconceivable wickedness of Constantinople was brought into Italy. Pope Sylverius, who was the son of Pope Hormisdas, was deposed by Theodora, the emperor's wife. This woman, once a common prostitute, sold the papacy to Vigilius for two hundred pounds of gold. Her accomplice, Antonina, the unprincipled wife of Belisarius, had Sylverius stripped of his robes and habited as a monk. He was subsequently banished to the old convict island of Pandataria, and there died. Vigilius embraced Eutychianism, and, it was said, murdered one of his secretaries, and caused his sister's son to be beaten to death. He was made to feel what it is for a bishop to be in the hands of an emperor; to taste of the cup so often presented to prelates at Constantinople; to understand in what estimation his sovereign held the vicar of God upon earth. Compelled to go to that metropolis to embrace the theological views which Justinian had put forth, thrice he agreed to them, and thrice he recanted; he excommunicated the Patriarch of Constantinople, and was excommunicated by him. In his personal contests with the imperial officials, they dragged him by his feet from a sanctuary with so much violence that a part of the structure was pulled down upon him; they confined him in a dungeon, and fed him on bread and water. Eventually he died an outcast in Sicily. The immediate effect of the conquest of Italy was the reduction of the popes to the degraded condition of the patriarchs of Constantinople. Such were the bitter fruits of their treason to the Gothic king. The success of Justinian's invasion was due to the clergy; in the ruin they brought upon their country, and the relentless tyranny they drew upon themselves, they had their reward.

In the midst of this desolation and degradation the Age of Faith was

gradually assuming distinctive lineaments in Italy. Paganization, which had been patronized as a matter of policy in the East, became a matter of necessity in the West. To a man like Gregory the Great, born in a position which enabled him to examine The paganization of religion proceeds. things from a very general point of view, it was clear that the psychical condition of the lower social stratum demanded concessions in accordance with its ideas. The belief of the thoughtful must be alloyed with the superstition of the populace.

Accordingly, that was what actually occurred. For the clear understanding of these events I shall have to speak, 1st, of the acts of Pope Gregory the Great, by whom the ideas of the age were or- Division of the subjects to be treated of. ganized and clothed in a dress suited to the requirements of the times; 2d, of the relations which the papacy soon assumed with the kings of France, by which the work of Gregory was consolidated, and upheld, and diffused all over Europe. It adds not a little to the interest of these things that the influences thus created have outlasted their original causes, and, after the lapse of more than a thousand years, though moss-covered and rotten, are a stumbling-block to the progress of nations.

Gregory the Great was the grandson of Pope Felix. His patrician parentage and conspicuous abilities had attracted in early life Gregory the Great. the attention of the Emperor Justin, by whom he was appointed prefect of Rome. Withdrawn by the Church from the splendors of secular life, he was sent, while yet a deacon, as nuncio to Constantinople. Discharging the duties that had been committed to him with singular ability and firmness, he resumed the monastic life on his return, with daily increasing reputation. Elected to the papacy by the clergy, the senate, and people of Rome, A.D. 590, with well-dissembled resistance he implored the emperor to reject their choice, and, on being refused, escaped from the city hidden in a basket. It is related that the retreat in which he was concealed was discovered by a celestial hovering light that settled upon it, and revealed to the faithful their reluctant pope. It was during a time of pestilence and famine.

Once made supreme pontiff, this austere monk in an instant resumed the character he had displayed at Constantinople, and exhibited the qualities of a great statesman. He regulated the Roman liturgy, the calendar of festivals, the order of processions, the fashions of sacerdotal garments; he himself officiated in the canon of the mass, devised many solemn and pompous rites, and invented the chant known by his name. He established schools of music, administered the Church revenues with precision and justice, and set an example of almsgiving and charity; for such was the misery of the times that even Roman matrons had to accept the benevolence of the Church. He authorized the alienation of Church property for the redemption of slaves, laymen as well as ecclesiastics.

An insubordinate clergy and a dissolute populace quickly felt the hand that now held the reins. He sedulously watched the inferior pastors, dealing out justice to them, and punishing all who offended with rigorous severity. He compelled the Italian bishops to acknowledge him as their metropolitan. He extended his influence to Greece; prohibited simony in Gaul; received into the bosom of the Church Spain, now renouncing her Arianism; sent out missionaries to Britain, and converted the pagans of that country; extirpated heathenism from Sardinia; resisted John, the Patriarch of Constantinople, who had dared to take the title of universal bishop; exposed to the emperor the ruin occasioned by the pride, ambition, and wickedness of the clergy, and withstood him on the question of the law prohibiting soldiers from becoming monks. It was not in the nature of such a man to decline the regulation of political affairs: he nominated tribunes, and directed the operations of troops.

No one can shake off the system that has given him power; no one can free himself from the tincture of the times of which he is the representative. Though in so many respects Gregory was far in advance of his age, he was at once insincere and profoundly superstitious. With more than Byzantine hatred he detested human knowledge. His oft-expressed belief that the end of the world was at hand, was perpetually contradicted by his acts, which were ceaselessly directed to the foundation of a future papal empire. Under him was sanctified

His material.
izes religion. that mythologic Christianity destined to become the religion of Europe for many subsequent centuries, and which adopted the adoration of the Virgin by images and pictures soon to adorn magnificent churches built to her glory; the efficacy of the remains of martyrs and relics; stupendous miracles wrought at the shrines of saints; the perpetual interventions of angels and devils in sublunary affairs; the truth of legends far surpassing in romantic improbability the stories of Greek mythology; the localization of heaven a few miles above the air, and of hell in the bowels of the earth, with its portal in the crater of Lipari. Gregory himself was a sincere believer in miracles, ghosts, and the resurrection of many persons from the grave, but who, alas! had brought no tidings of the secret wonders of that land of deepest shade. He made these wild fancies the actual, the daily, the practical religion of Europe. Participating in the ecclesiastical hatred of human

His hatred
of learning. learning, and insisting on the maxim that "Ignorance is the mother of devotion," he expelled from Rome all mathematical studies, and burned the Palatine library founded by Augustus Cæsar. It was valuable for the many rare manuscripts it contained. He forbade the study of the classics, mutilated statues, and destroyed temples. He and expulsions of
classical authors. hated the very relics of classical genius; pursued with vindictive fanaticism the writings of Livy, against whom he

was specially excited. Well has it been said that "he was as inveterate an enemy against learning as ever lived;" that "no lucid ray ever beamed on his superstitious soul." He boasted that his own works were written without regard to the rules of grammar, and censured the crime of a priest who had taught that subject. It was his aim to substitute for the heathen writings others which he thought less dangerous to orthodoxy; and so well did he succeed in rooting out of Italy her illustrious pagan authors, that when one of his successors, Paul I., sent to Pepin of France "what books he could find," they were "an antiphonal, a grammar, and the works of Dionysius the Areopagite." He was the very incarnation of the Byzantine principle of ignorance.

If thus the misfortunes that had fallen on Italy had given her a base population, whose wants could only be met by a paganized religion, the more fortunate classes all over the empire had long been tending in the same direction. Whoever will examine the progress of Christian society from the earlier ages, will find that there could be no other result than a repudiation of solid learning and an alliance with art. We have only to compare the poverty and plainness of the first disciples with the extravagance reached in a few generations. Cyprian complains of the covetousness, pride, luxury, and worldly-mindedness of Christians, even of the clergy and confessors. Some made no scruple to contract matrimony with heathens. Clement of Alexandria bitterly inveighs against "the vices of an opulent and luxurious Christian community—splendid dresses, gold and silver vessels, rich banquets, gilded litters and chariots, and private baths. The ladies kept Indian birds, Median peacocks, monkeys, and Maltese dogs, instead of maintaining widows and orphans; the men had multitudes of slaves." The dipping three times at baptism, the tasting of honey and milk, the oblations for the dead, the signing of the cross on the forehead on putting on the clothes or the shoes, or lighting a candle, which Tertullian imputes to tradition without the authority of Scripture, foreshadowed a thousand pagan observances soon to be introduced. As time passed on, so far from the state of things improving, it became worse. Not only among the frivolous class, but even among historic personages, there was a hankering after the ceremonies of the departed creed, a lingering attachment to the old rites, and, perhaps, a religious indifference to the new. To the age of Justinian these remarks strikingly apply. Boethius was, at the best, only a pagan philosopher; Tribonian, the great lawyer, the author of the Justinian Code, was suspected of being an atheist.

In the East, the splendor of the episcopal establishments extorted admiration even from those who were familiar with the imperial court. The well-ordered trains of attendants and the magnificent banquets in the bishops' palaces are particularly praised. Extravagant views of

Gradual preparation for the debasement of religion.

Corruption of Christianity.

the pre-eminent value of celibacy had long been held among the more devout, who conceded a reluctant admission even for marriage itself. "I praise the married state, but chiefly for this, that it provides virgins," had been the more than doubtful encomium of St. Jerome. Among the clergy, who under the force of this growing sentiment found it advisable to refrain from marriage, it had become customary, as we learn from the enactments and denunciations against the practice, to live with "sub-introduced women," as they were called. These passed as sisters of the priests, the correctness of whose taste was often exemplified by the remarkable beauty of their sinful partners. A law of Honorius put an end to this iniquity. The children arising from these associations do not appear to have occasioned any extraordinary scandal. At weddings it was still the custom to sing hymns to Venus. The cultivation of music at a very early period attracted the attention of many of the great ecclesiastics—Paul of Samosata, Arius, Chrysostom. In the first congregations probably all the worshipers joined in the hymns and psalmody. By degrees, however, more skillful performers had been introduced, and the chorus of the Greek tragedy made available under the form of antiphonal singing. The Ambrosian chant was eventually exchanged for the noble Roman chant of Gregory the Great, which has been truly characterized as the foundation of all that is grand and elevated in modern music.

With the devastation that Italy had suffered the Latin language was becoming extinct. But Roman literature had never been converted to Christianity. Of the best writers among the Fathers, not one was a Roman; all were provincials. The literary basis was the Hebrew Scriptures and the New Testament, the poetical imagery being, for the most part, borrowed from the prophets. In historical compositions there was a want of fair dealing and truthfulness to us almost incredible; thus Eusebius naïvely avows that in his history he shall omit whatever might tend to the discredit of the Church, and magnify whatever might conduce to her glory. The same principle was carried out in numberless legends, many of them deliberate forgeries, the amazing credulity of the times yielding to them full credit, no matter how they might outrage common sense. But what else was to be expected of generations that could believe that the tracks of Pharaoh's chariot-wheels were still impressed on the sands of the Red Sea, and could not be obliterated either by the winds or the waves? He who ventured to offend the public taste for these idle fables brought down upon himself the wrath of society, and bore the brand of an infidel. In the interpretation of the Scriptures, and, indeed, in all commentaries on authors of repute, there was a constant indulgence in fanciful mystification and the detection of concealed meanings, in the extracting of which

an amusing degree of ingenuity and industry was often shown; but these hermeneutical writings, as well as the polemical, are tedious beyond endurance; of the latter, the energy of their vindictive violence is not sufficient to redeem them.

The relation of the Church to the sister arts, painting and sculpture, was doubtless fairly indicated at a subsequent time by the second Council of Nicea, A.D. 787; their superstitious use ^{Painting and sculpture.} had been resumed. Sculpture has, however, never forgotten the preference that was shown to her sister. To this day she is a pagan, emulating therein the example of the noblest of the sciences, Astronomy, who bears in mind the great insults she has received from the Church, and tolerates the name of no saint in the visible heavens; the new worlds she discovers are dedicated to Uranus, or Neptune, or other Olympian divinities. Among the ecclesiastics there had always been many, occasionally some of eminence, who set their faces against the connection of worship with art; thus Tertullian of old had manifested his displeasure against Hermogenes on account of the two deadly sins into which he had fallen, painting and marriage; but Gnostic Christianity had approved, as Roman Christianity was now to approve, of their union. To the Gnostics we owe the earliest examples of our sacred images. The countenance of our Savior, along with those of Pythagoras, Plato, Aristotle, appears on some of their engraved gems and seals. Among the earlier fathers—Justin Martyn and Tertullian—there was the impression that the personal appearance of our Lord was ungainly; that he was short of stature; and, at a later period Cyril says, mean of aspect "even beyond the ordinary race of men." But these unsuitable delineations were generally corrected in the fourth century, it ^{Adopts a typical model of the Savior,} being then recognized that God could not dwell in a humble form or low stature. The model eventually received was perhaps that described in the spurious epistle of Lentulus to the Roman senate: "He was a man of tall and well-proportioned form; his countenance severe and impressive, so as to move the beholders at once with love and awe. His hair was of an amber color, reaching to his ears, with no radiation, and standing up from his ears clustering and bright, and flowing down over his shoulders, parted on the top according to the fashion of the Nazarenes. The brow high and open; the complexion clear, with a delicate tinge of red; the aspect frank and pleasing; the nose and mouth finely formed; the beard thick, parted, and of the color of the hair; the eyes blue, and exceedingly bright." Subsequently the oval countenance assumed an air of melancholy, which, though eminently suggestive, can hardly be considered as the type of manly beauty. At first the cross was without any adornment; it next had a lamb at the foot; and eventually became the crucifix, sanctified with the form of the dying Savior. Of the Virgin Mary, destined in later times to

and of the Virgin. furnish so many transcendently beautiful types of female loveliness, the earliest representations are veiled. The Egyptian sculptors had thus depicted Isis; the first form of the Virgin and child was the counterpart of Isis and Horus. St. Augustine says her countenance was unknown; there appears, however, to have been a very early Christian tradition that in complexion she was a brunette. Adventurous artists by degrees removed the veil, and next to the mere countenance added a full-grown figure like that of a dignified Roman matron; then grouped her with the divine child, the wise men, and other suggestions of Scripture.

While thus the papacy was preparing for an alliance with art, it did not forget to avail itself of the vast advantages within its reach by interfering in domestic life—an interference which the social demoralization of the time more than ever permitted. A prodigious step in power was made by assuming the cognizance of marriage, and the determination of the numberless questions connected with it. Once having discovered the influence thus gained, the papacy never surrendered it again; some of the most important events in later history have been determined by its action in this matter. Perhaps even a greater power accrued from its assumption of the cognizance of wills, and of questions respecting the testamentary disposal of property. Though in many respects, at the time we are now considering, the papacy had separated itself from morality, had become united to Monachism, and was preparing for a future alliance with political influences and military power; though its indignation and censures were less against personal wickedness than heresy of opinion, toward which it was inexorable and remorseless, a good effect arose from these assumptions upon domestic life, particularly as regards the elevation of the female sex. The power thus arising was re-enforced by a continually-increasing rigor in the application of penitential punishments. As in the course of years the intellectual basis on which that power rested became more doubtful, and therefore more open to attack, the papacy became more sensitive and more exacting. Pushed on by the influence of the lower population, it fell into the depths of anthropomorphism, asserting for the Virgin and the saints such attributes as omniscience, omnipresence, omnipotence. Every where present, they could always listen to prayer, and, if necessary, control or arrest the course of Nature. As it was certain that such doctrines must in the end be overthrown, the inevitable day was put off by an instant and vindictive repression of any want of conformity. Despotism in the state and despotism in the Church were upheld by despotism over thought.

From the acts of Pope Gregory the Great, and his organization of the ideas of his age, the paganization of religion in Italy and its alliance

with art, I have now to consider the second topic to which this chapter is devoted—the relations assumed by the papacy with the kings of France, by which the work of Gregory was consolidated and upheld, and diffused all over Europe.

Origin of the alliance of the papacy and France.

The armies of the Saracens had wrested from Christendom the western, southern, and eastern countries of the Mediterranean; their fleets dominated in that sea. Ecclesiastical policy had undergone a revolution. Carthage, Alexandria, Jerusalem, Antioch, had disappeared from the Christian system; their bishops had passed away. Alone, of the great episcopal seats, Constantinople and Rome were left. To all human appearance, their fall seemed to be only a question of time.

Military results of the Arabian wars.

The disputes of the Bishop of Rome with his African and Asiatic rivals had thus come to an untimely end. With them nothing more remained to be done; his communications with the emperor at Constantinople were at the sufferance of the Mohammedan navies. The imperial power was paralyzed. The pope was forced by events into isolation; he converted it into independence.

Independence of the pope.

But independence! how was it to be asserted and maintained. In Italy itself the Lombards seemed to be firmly seated, but they were Arian heretics. Their presence and power were incompatible with his. Already, in a political sense, he was at their mercy.

One movement alone was open to him; and, whether he rightly understood his position or not, the stress of events forced him to take it. It was an alliance with the Franks, who had successfully resisted the Mohammedan power, and who were orthodox.

An ambitious Frank officer had resolved to deprive his sovereign of the crown if the pope would sanctify the deed. They came to an understanding. The usurpation was consummated by the one and consecrated by the other. It was then the interest of the intrusive line of monarchs to magnify their Italian confederate. In the spread of Roman principles lay the consolidation of the new Frankish power. It became desirable to compel the ignorant German tribes to acknowledge in the pope the vicegerent of God, even though the sword must be applied to them for that purpose for thirty years.

Conditions of his alliance with the Franks.

The pope revolted from his Byzantine sovereign on the question of images; but that was a fictitious issue. He did not revolt from his new ally, who fell into the same heresy. He broke away from a weak and cruel master, and attached himself on terms of equality to a confederate. But from the first his eventual ascendancy was assured. The representative of a system that is immortal must finally gain supremacy over individuals and families, who must die.

Though we can not undervalue the labors of the monks, who had already nominally brought many portions of Europe to Christianity, the

The conversion of Europe. passage of the centre of the Continent to its Age of Faith, was, in an enlarged political sense, the true issue of the empire of the Franks. The fiat of Charlemagne put a stamp upon it which it bears to this day. He converted an ecclesiastical fiction into a political fact.

To understand this important event, it is necessary to describe, 1st, the psychical state of Central Europe; 2d, the position of the pontiff and his compact with the Franks. It is also necessary to determine the actual religious value of the system he represents, and this is best done through, 3d, the biography of the popes.

The psychical change of Europe. 1st. As with the Arabs, so with the barbarians of Europe. They pass from their Age of Credulity to their Age of Faith without dwelling long in the intermediate state of inquiry. An age of inquiry implies self-investigation, and the absence of an authoritative teacher. But the Arabs had had the Nestorians and the Jews, and to the Germans the lessons of the monk were impressively illustrated by the convincing argument of the sword of Charlemagne.

The military invasions of the south by the barbarians were retaliated by missionary invasions of the north. The aim of the former was to conquer, that of their antagonists to convert, if antagonists those can be called who sought to turn them from their evil ways.

Labors and successes of the monks. The monk penetrated through their most gloomy forests unarmed and defenseless; he found his way alone to their fortresses. Nothing touches the heart of a savage so profoundly as the greatness of silent courage. Among the captives taken from the south in war

Influence of devoted women. were often high-born women of great beauty and purity of mind, and sometimes even bishops, who, true to their religious principles, did not fail to exert a happy and a holy influence on the tribes among whom their lot was cast. One after another the various nations submitted: the Vandals and Gepidæ in the fourth century; the Goths somewhat earlier; the Franks at the end of the fifth;

Conversion of Europe. the Alemanni and Lombards at the beginning of the sixth; the Bavarians, Hessians, and Thuringians in the seventh and eighth. Of these, all embraced the Arian form except the Franks, who were converted by the Catholic clergy. In truth, however, these nations were only Christianized upon the surface, their conversion being indicated by little more than their making the sign of the cross. In all these movements women exercised an extraordinary influence: thus Clotilda, the Queen of the Franks, brought over to the faith her husband Clovis. Bertha, the Queen of Kent, and Gisella, the Queen of Hungary, led the way in their respective countries; and under similar influences were converted the Duke of Poland and the Czar Jarislaus. To women thus Europe is greatly indebted, though the forms of religion at the first were nothing more than the creed and the Lord's prayer. It has

been truly said that for these conversions three conditions were necessary—a devout female of the court, a national calamity, and a monk. As to the people, they seem to have followed the example of their rulers in blind subserviency, altogether careless as to what the required faith might be. The conversion of the ruler is naïvely taken by historians as the conversion of the whole people. As might be expected, a faith so lightly assumed at the will or whim of the sovereign was often as lightly cast aside; thus the Swedes, Bohemians, and Hungarians relapsed into idolatry.

Among such apostasies it is interesting to recall that of the inhabitants of Britain, to whom Christianity was first introduced by the Roman legions, and who might boast in Constantine the Great, and his mother Helena, if they were really natives of that country, that they had exercised no little influence on the religion of the world. The history of Pelagius shows with what acuteness theological doctrines were considered in those remote regions; but, after the decline of Roman affairs, this promising state of things was destroyed, and the clergy driven by the pagan invaders to the inaccessible parts of Wales, Scotland, and Ireland. The sight of some English children exposed for sale in the slave-market at Rome suggested to Gregory the Great the attempt of reconverting the island. On his assuming the pontificate, he commissioned the monk Augustine for that purpose; and after the usual exertion of female influence in the court of King Ethelbert, by Bertha, his Frankish princess, and the usual vicissitudes of backsliding, the faith gradually won its way throughout the whole country. A little opposition occurred on the part of the ancient clergy, who retained in their fastnesses the traditions of the old times, particularly in regard to Easter. But this at length disappeared; an intercourse sprang up with Rome, and it became common for the clergy and wealthy nobles to visit that city.

Displaying the same noble quality which in our own times characterizes it, British Christianity did not fail to exert a proselyting spirit. As, at the end of the sixth century, Columban, an Irish monk of Banchor, had gone forth as a missionary, passing through France, Switzerland, and beyond the confines of the ancient Roman empire, so about a century later Boniface, an Englishman of Devonshire, repaired to Germany, under a recommendation from the pope and Charles Martel, and labored among the Hessians and Saxons, cutting down their sacred oaks, overturning their altars, erecting churches, founding bishoprics, and gaining at last, from the hands of the savages, the crown of martyrdom. In the affinity of their language to those of the countries to which they went, these missionaries from the West found a very great advantage.

It is the glory of Pope Formosus, the same whose body underwent a

posthumous trial, to have converted the Bulgarians, a people who came from the banks of the Volga. The fact that this event was brought about by a picture representing the judgment-day shows on what trifling circumstances these successes turned. The Slavians were converted by Greek missionaries, and for them the monk Cyril invented an alphabet, as Ulphilas had done for the Goths. The predatory Normans, who plundered the churches in their forays, embraced Christianity on settling in Normandy, as the Goths, in like circumstances, had elsewhere done. The Scandinavians were converted by St. Anskar.

Thus, partly by the preaching of missionaries, partly by the example of monks, partly by the influence of females, partly by the sword of the Frankish sovereigns, partly by the great name of Rome, Europe was at last nominally converted. The so-called religious wars of Charlemagne, which lasted for more than thirty years, and which were attended by the atrocities always incident to such undertakings, were doubtless as much, so far as he was concerned, of a political as of a theological nature. They were the embodiment of the understanding that had been made with Rome by Pepin. Charlemagne clearly comprehended the position and functions of the Church; he never suffered it to intrude unduly on the state. Regarding it as furnishing a bond for uniting not only the various nations and tribes of his empire, but even families and individuals together, he ever extended to it a wise and liberal protection. His mental condition prevented him from applying its doctrines to the regulation of his own life, which was often blemished by acts of violence and immorality. From the point of view he occupied, he doubtless was led to the conclusion that the maxims of religion were intended for the edification and comfort of those who occupied a humbler sphere, and that for a prince it is only necessary to maintain appropriate political relations with the Church. To him baptism was the sign, not of salvation, but of the subjugation of people; and the foundation of churches and monasteries, the institution of bishoprics, and increase of the clergy, a more trustworthy means of government than military establishments. A priest must necessarily lean on him for support, a lieutenant might revolt.

If thus Europe, by its conversion, received from Rome an immense benefit, it repaid the obligation at last by infusing into Latin Christianity what was sadly needed—a higher moral tone. Earnestness is the attribute of savage life. That divorce between morality and faith which the southern nations had experienced was not possible among these converts. If, by communicating many of their barbarous and pagan conceptions to the Latin faith, they gave it a tendency to develop itself in an idolatrous form, their influence was not one of unmitigated evil, for while they lowered the standard of public belief, they elevated that of private life. In truth, the contamination

Indicates of Charlemagne on these events.

Indicates action of converted Europe.

they impressed is often overrated. The infusion of paganism into religion was far more due to the people of the classical countries. The inhabitants of Italy and Greece were never really alienated from the idolatries of the old times. At the best, they were only Christianized on the surface. With many other mythological practices, they forced image-worship on the clergy. But Charlemagne, who in this respect may be looked upon as a true representative of Frankish and German sentiment, totally disapproved of that idolatry.

2d. From this consideration of the psychical revolution that had occurred in Central Europe, I have, in the next place, to investigate the position of the papacy and its compact with the Franks.

The conspiracy of the papacy and the Franks.

Scarcely had the Arabs consolidated their conquest of Africa when they passed into Spain, and quickly, as will be related in a subsequent chapter, subjugating that country, prepared to overwhelm Europe. It was their ambition and their threat to preach the unity of God in Rome. They reached the centre of France, but were beaten in the great battle at Tours by Charles Martel, the Duke of the Franks, A.D. 732. That battle fixed the religious destiny of Europe. The Saracens did not, however, give up their attempt. Three years afterward they returned into Provence, and Charles was himself repulsed. But by this time their power had expanded too extensively for consolidation. It was already giving unmistakable tokens of decomposition. Scarcely indeed had Musa, the conqueror of Spain, succeeded in his expedition, when he was arrested at the head of his army and ordered to give an account of his doings at Damascus. It was the occurrence of such disputes among the Saracens in Spain that constituted the true check to their conquest of France. Charles Martel had permitted Chilperic II. and Thierry IV. to retain the title of king; but his foresight of approaching events seems to be indicated by the circumstance that after the death of the latter he abstained from appointing any successor. He died A.D. 741, leaving a memory detested by the Church of his own country on account of his having been obliged to appropriate from its property sufficient for the payment of his army. He had taken a tithe from the revenues of the churches and convents for that purpose. The ignorant clergy, alive only to their present temporal interests, and not appreciating the great salvation he had wrought out for them, could never forgive him. Their inconceivable greed could not bear to be taxed even in its own defense. "It is because Prince Charles," says the Council of Kiersi to one of his descendants, "was the first of all the kings and princes of the Franks who separated and dismembered the goods of the Church; it is for that sole cause that he is eternally damned. We know, indeed, that St. Eucherius, Bishop of Orleans, being in prayer, was carried up into the world

Position of the Franks and Saracens.

Relations of Charles Martel to the Church.

of spirits, and that among the things which the Lord showed to him, he beheld Charles tormented in the lowest depths of hell. The angel who conducted him, being interrogated on this matter, answered him that, in the judgment to come, the soul and body of him who has taken, or who has divided the goods of the Church, shall be delivered over, even before the end of the world, to eternal torments by the sentence of the saints, who shall sit together with the Lord to judge him. This act of sacrilege shall add to his own sins the accumulated sins of all those who thought that they had purchased their redemption by giving for the love of God their goods to holy places, to the lights of divine worship, and to the alms of the servants of Christ." This amusing but instructive quotation strikingly shows how quickly the semibarbarian Frankish clergy had caught the methods of Rome in the defense of temporal possessions.

Pepin, the son of Charles Martel, introduces us to an epoch and a policy resembling in many respects that of Constantine the Great; for he saw that by an alliance with the Church it would be possible for him to displace his sovereign and attain to kingly power. A thorough understanding was entered upon between Pepin and the pope. Each had his needs. One wanted the crown of France, the other liberation from Constantinople and the Lombards. Pepin commenced by enriching the clergy with immense gifts, and assigning to the bishops seats in the assembly of the nation. In thus consolidating ecclesiastical power he occasioned a great social revolution, as was manifested by the introduction of the Latin and the disuse of the Frankish on those occasions, and by the transmuting of military reviews into theological assemblies. Meantime the Pope Zachary, on his part, made ready to accomplish his engagement, the chaplain of Pepin being the intermedium of negotiation. On the demand being formally made, the pope decided that "he should be king who really possessed the royal power." Hereupon, in March, A.D. 752, Pepin caused himself to be raised by his soldiers on a buckler and proclaimed King of the Franks. To give solemnity to the event, he was anointed by the bishops with oil. The deposed king, Childeric, was shut up in the convent of St. Omer. Next year Pope Stephen II., driven to extremity, applied to Pepin for assistance against the Lombards. It was during these transactions that he fell upon the device of enforcing his demand by a letter which he feigned to have been written by St. Peter to the Franks. And now visiting France, the pope, as an earnest of his friendship, and as the token of his completion of the contract, in the monastery of St. Denis, placed, with his own hands, the diadem on Pepin's brow, and anointed him, his wife, and children, with "the holy oil," thereby reviving the Jewish system of creating kings by anointment, and imparting to his confederate "a divine right." Pepin now

finally defeated the Lombards, and assigned a part of the conquered territory to the pope. Thus, by a successful soldier, two important events had been accomplished—a revolution in France, attended by a change of dynasty, and a revolution in Christendom—the Bishop of Rome had become a temporal sovereign. To the hilt of the sword of France the keys of St. Peter were henceforth so firmly bound that, though there have been great kings, and conquerors, and statesmen who have wielded that sword, not one to this day has been able, though many have desired, to wrench the encumbrance away.

Charlemagne, on succeeding his father Pepin, thoroughly developed his policy. At the urgent entreaty of Pope Stephen III. he entered Italy, subjugated the Lombards, and united the crown of Lombardy to that of France. Upon the pagan Saxons burning the church of Deventer, he commenced a war with them which lasted thirty-three years, and ended in their compulsory Christianization. As the circle of his power extended, he every where founded churches and established bishoprics, enriching them with territorial possessions. To the petty sovereigns, as they successively succumbed, he permitted the title of counts. True to his own and his father's understanding with the pope, he invariably insisted on baptism as the sign of submission, punishing with appalling barbarity any resistance, as on the occasion of the revolt, A.D. 782, when, in cold blood, he beheaded in one day 4500 persons at Verden. Under such circumstances, it is not to be wondered at that clerical influence extended so fast; yet, rapid as was its development, the power of Charlemagne was more so.

In the church of St. Peter at Rome, on Christmas-day, A.D. 800, Pope Leo III., after the celebration of the holy mysteries, suddenly placed on the head of Charlemagne a diadem, amid the acclamations of the people, "Long life and victory to Charles, the most pious Augustus, crowned by God, the great and pacific Emperor of the Romans." His head and body were anointed with the holy oil, and, after the example of the Cæsars, the pontiff himself saluted or adored him. In the coronation oath Charlemagne promised to maintain the privileges of the Church.

The noble title of "Emperor of the West" was not inappropriate, for Charlemagne ruled in France, Spain, Italy, Germany, Hungary. An inferior dignity would not have been equal to his deserts. His princely munificence to St. Peter was worthy of the great occasion, and even in his minor acts he exhibited a just appreciation of his obligations to the apostle. He proceeded to make in his dominions such changes in the Church organization as the Italian policy required, substituting, for instance, the Gregorian for the Ambrosian chant, and, wherever his priests resisted, took from them by force their antiphonaries; and, as an example to insubordinates, at the request of the pope burnt some of the singers along with their books.

*The reign of
Charlemagne.*

*He is crowned
Emperor of the
West.*

*and carries out his
compact with the
papacy.*

The rapid growth of the power of Charlemagne, his overshadowing pre-eminence, and the subordinate position of the pope, who had really become his Italian lieutenant, are strikingly manifested by the event of image-worship in the West. On this, as we shall in another chapter see, the popes had revolted from their iconoclastic sovereigns of Constantinople. The second Council of Nicea had authorized image-worship, but the good sense of Charlemagne was superior to such idolatry. He openly expressed his disapproval, and even dictated a work against it—the Carolinian books. The pope was therefore placed in a singular dilemma, for not only had image-worship been restored at Constantinople, and the original cause of the dispute removed, but the new protector, Charlemagne, had himself embraced iconoclasm. However, it was not without reason that the pope at this time avoided the discussion, for a profitable sale of bones and relics, said to be those of saints, but in reality obtained from the catacombs of Rome, had arisen. To the barbarian people of the north these gloomy objects proved more acceptable than images of wood, and the traffic, though contemptible, was more honorable than the slave-trade in vassals and peasant children which had been carried on with Jews and Mohammedans. Like all the great statesmen of antiquity, who were unable to comprehend the possibility of a highly civilized society without the existence of slavery, Charlemagne accepted that unfortunate condition as a political necessity, and attempted to draw from it as much benefit as it was capable of yielding to the state. From certain classes of slaves he appointed, by a system of apprenticeship, those who should be devoted to the mechanical arts and to trade. It was, however, slavery and warfare which, during his own life, by making the possession of property among small proprietors an absolute disadvantage, prepared the way for that rapid dissolution of his empire so quickly occurring after his death.

Yet, though Charlemagne thus accepted the existence of slavery as a necessary political evil, the evidences are not wanting that he was desirous to check its abuses wherever he could. When the Italian dukes accused Pope Adrian of selling his vassals as slaves to the Saracens, Charlemagne made inquiry into the matter, and, finding that transactions of the kind had occurred in the port of Civita Vecchia, though he did not choose to have so infamous a scandal made public, he ever afterward withdrew his countenance from that pope. At that time a very extensive child slave-trade was carried on with the Saracens through the medium of the Jews, ecclesiastics as well as barons selling the children of their serfs.

Though he never succeeded in learning how to write, no one better than Charlemagne was of knowledge. He labored assiduously for the improvement of his people. He col-

lected together learned men; ordered his clergy to turn their attention to letters; established schools of religious music; built noble palaces, churches, bridges; transferred, for the adornment of his capital, Aix-la-Chapelle, statues from Italy; organized the professions and trades of his cities, and gave to his towns a police. Well might he be solicitous that his clergy should not only become more devout, but more learned. Very few of them knew how to read, scarcely any to write. Of the first half of the eighth century, a period of great interest, since it includes the invasion of France by the Saracens, and their expulsion, there is nothing more than the most meagre annals; the clergy understood much better the use of the sword than that of the pen. The schools of Charlemagne proved a failure, not through any fault of his, but because the age had no demand for learning, and the Roman pontiffs and their clergy, as far as they troubled themselves with any opinion about the matter, thought that knowledge was of more harm than good.

Improvements of the physical state of the people.

State of the clergy.

The private life of Charlemagne was stained with great immoralities and crimes. He indulged in a polygamy scarcely inferior to that of the khalifs, solacing himself with not less than nine wives and many concubines. He sought to increase the circle of the former, or perhaps it should be said, considering the greatness of his statesmanship, to unite the Eastern and Western empires together by a marriage with the Empress Irene. This was that Irene who put out the eyes of her own son in the porphyry chamber at Constantinople. His fame extended into Asia. The Khalif Haroun al Raschid, A.D. 801, sent him from Bagdad the keys of our Savior's sepulchre as a mark of esteem from the Commander of the Faithful to the greatest of Christian kings. However, there was doubtless as much policy as esteem in this, for the Asiatic khalifs perceived the advantage of a good understanding with the power that could control the emirs of Spain. Always bearing in mind his engagement with the papacy, that Roman Christianity should be enforced upon Europe wherever his influence could reach, he remorselessly carried into execution the penalty of death that he had awarded to the crimes of, 1, refusing baptism; 2, false pretense of baptism; 3, relapse to idolatry; 4, the murder of a priest or bishop; 5, human sacrifice; 6, eating meat in Lent. To the pagan German his sword was a grim, but a convincing missionary. To the last he observed a savage fidelity to his bond. He died A.D. 814.

Private life of Charlemagne.

His relations with the Saracens.

Such was the compact that had been established between the Church and the State. As might be expected, the succeeding transactions exhibit an alternate preponderance of one and of the other, and the degradation of both in the end. Scarcely was Charlemagne dead ere the imbecile character of his son and successor, Louis the

Course of events after the death of Charlemagne.

Pious, gave the Church her opportunity. By the expulsion of his father's numerous concubines and mistresses, the scandals of the palace were revealed. I have not the opportunity to relate in detail how this monarch disgracefully humiliated himself before the Church; how, under his weak government, the slave-trade greatly increased; how every shore, and, indeed, every country that could be reached through a navigable river, was open to the ravages of pirates, the Northmen extending their maraudings even to the capture of great cities; how, in strong contrast with the social decomposition into which Europe was falling, Spain, under her Mohammedan rulers, was becoming rich, populous, and great; how, on the east, the Huns and Avars, ceasing their ravages, accepted Christianity, and, under their diversity of interests, the nations that had been bound together by Charlemagne separated into two divisions—French and German—and civil wars between them ensued; how, through the folly of the clergy, who vainly looked for protection from relics instead of the sword, the Saracens ranged uncontrolled all over the south, and came within a hair's-breadth of capturing Rome itself; how France, at this time, had literally become a theocracy, the clergy absorbing every thing that was worth having; how the pope, trembling at home, nevertheless maintained an external power by interfering with domestic life, as in the quarrel with King Lothaire II. and his wife; how Italy, France, and Germany became, as Africa and Syria had once been, full of miracles; how, through these means the Church getting the advantage, John VIII. thought it expedient to assert his right of disposing of the imperial crown in the case of Charles the Bald (the imperial supremacy that Charlemagne had obtained in reality implied the eventual supremacy of the pope); how an opportunity occurring for reconstructing the empire of the West under Charles the Fat was thwarted by the imbecility of that sovereign, an imbecility so great that his nobles were obliged to depose him; how, thereupon, a number of new kingdoms arose, and Europe fell, by an inevitable necessity, into a political chaos; how, since there was thus no protecting government, each great landowner had to protect himself, and the rightfulness of private war became recognized; how, through this evil state, the strange consequence ensued of a great increase in the population, it becoming the interest of every lord to raise as many peasants as he could, offering his lands on personal service, the value of an estate being determined by the number of retainers it could furnish, and hence arose the feudal system; how the monarchical principle, once again getting the superiority, asserted its power in Germany in Henry the Fowler and his descendants, the three Othos; how, by these great monarchs, the subjection of Italy was accomplished, and the morality of the German clergy vindicated by their attempts at the reformation of the papacy, which fell to the last degree of degradation, becoming, in the end, an appanage of the Counts

of Tusculum, and, shameful to be said, in some instances given by prostitutes to their paramours or illegitimates, in some to mere boys of precociously dissolute life; before long, A.D. 1044, it was actually to be sold for money. We have now approached the close of a thousand years from the birth of Christ; the evil union of the Church and state, their rivalries, their intrigues, their quarrels, have produced an inevitable result, doing the same in the West that they had done in the East: disorganizing the political system, and ending in a universal social demoralization. The absorption of small properties into large estates steadily increased the number of slaves; where there had once been many free families, there was now found only a rich man. Even of this class the number diminished by the same process of absorption, until there were sparsely scattered here and there ab-

Social condition of Europe.

bots and counts with enormous estates worked by herds of slaves, whose numbers, since sometimes one man possessed more than 20,000 of them, might deceive us, if we did not consider the vast surface over which they were spread. Examined in that way, the west of Europe proves to have been covered with forests, here and there dotted with a convent or a town. From those countries, once full of the splendid evidences of Roman civilization, mankind was fast disappearing. There was no political cause, until at a later time, when the feudal system was developed, for calling men into existence. Whenever there was a partial peace, there was no occasion for the multiplication of men beyond the intention of extracting from them the largest possible revenue, a condition implying their destruction. Soon even the necessity for legislation ceased; events were left to take their own course. Through the influence of the monks the military spirit declined; a vile fetishism of factitious relics, which were working miracles in all directions, constituted the individual piety. Whoever died without bequeathing a part of his property to the Church, died without confession and the sacraments, and forfeited Christian burial. Trial by battle, and the ordeals of fire and boiling water, determined innocence or guilt in those accused of crimes. Between places at no great distance apart intercommunication ceased, or, at most, was carried on as in the times of the Trojan War, by the peddler traveling with his packs.

In these deplorable days there was abundant reason to adopt the popular expectation that the end of all things was at hand, and that A.D. 1000 would witness the destruction of the world. Society was dissolving, the human race was disappearing, and with difficulty the melancholy ruins of ancient civilization could be traced. Such was the issue of the second attempt at the union of political and ecclesiastical power. In a former chapter we saw what it had been in the East, now we have found what it was in the West. Inaugurated in selfishness, it strengthens

Expected end of the world, A.D. 1000.

Effects of the union of Church and state.

itself by violence, is perpetuated by ignorance, and yields, as its inevitable result, social ruin.

And while things were thus going to wreck in the state, it was no better in the Church. The ill-omened union between them was bearing its only possible fruit, disgrace to both—a solemn monition to all future ages.

3d. This brings me to the third and remaining topic I proposed to consider in this chapter, to determine the actual religious value of the system in process of being forced upon Europe, using, for the purpose, that which must be admitted as the best test—the private lives of the popes.

Value of the new system estimated from the lives of the popes.

To some it might seem, considering the interests of religion alone, desirable to omit all biographical reference to the popes; but this can not be done with justice to the subject. The essential principle of the papacy, that the Roman pontiff is the vicar of Christ upon earth, necessarily obtrudes his personal relations upon us. How shall we understand his faith unless we see it illustrated in his life? Indeed, the unhappy character of those relations was the inciting cause of the movements in Germany, France, and England, ending in the extinction of the papacy as an actual political power, movements to be understood only through a sufficient knowledge of the private lives and opinions of the popes. It is well, as far as possible, to abstain from burdening systems with the imperfections of individuals. In this case they are inseparably interwoven. The signal peculiarity of the papacy is that, though its history may be imposing, its biography is infamous. I shall, however, forbear to speak of it in this latter respect more than the occasion seems necessarily to require; shall pass in silence some of those cases which would profoundly shock my religious reader, and therefore restrict myself to the ages between the middle of the eighth and the middle of the eleventh centuries, excusing myself to the impartial critic by the apology that these were the ages with which I have been chiefly concerned in this chapter.

On the death of Pope Paul I., who had attained the pontificate A.D. 757, the Duke of Nepi compelled some bishops to consecrate Constantine, one of his brothers, as pope; but more legitimate electors subsequently, A.D. 768, choosing Stephen IV., the usurper and his adherents were severely punished; the eyes of Constantine were put out; the tongue of the Bishop Theodorus was amputated, and he was left in a dungeon to expire in the agonies of thirst. The nephews of Pope Adrian seized his successor, Pope Leo III., A.D. 795, in the street, and, forcing him into a neighboring church, attempted to put out his eyes and cut off his tongue; at a later period, this pontiff trying to suppress a conspiracy to depose him, Rome became the scene of a rebellion, murder, and conflagration. His successor, Stephen V.,

The popes from A.D. 757.

A.D. 816, was ignominiously driven from the city; his successor, Paschal I., was accused of blinding and murdering two ecclesiastics in the Lateran Palace; it was necessary that imperial commissioners should investigate the matter, but the pope died, after having exculpated himself by oath before thirty bishops. John VIII., A.D. 872, unable to resist the Mohammedans, was compelled to pay them tribute; the Bishop of Naples, maintaining a secret alliance with them, received his share of the plunder they collected. Him John excommunicated, nor would he give him absolution unless he would betray the chief Mohammedans and assassinate others himself. There was an ecclesiastical conspiracy to murder the pope; some of the treasures of the Church were seized; and the gate of St. Pancrazia was opened with false keys, to admit the Saracens into the city. Formosus, who had been engaged in these transactions, and excommunicated as a conspirator for the murder of John, was subsequently elected pope, A.D. 891; he was succeeded by Boniface VI., A.D. 896, who had been deposed from the diaconate, and again from the priesthood, for his immoral and lewd life. By Stephen VII., who followed, the dead body of Formosus was taken from the grave, clothed in the papal habiliments, propped up in a chair, and tried before a council, and the preposterous and indecent scene completed by cutting off three of the fingers of the corpse and casting it into the Tiber; but Stephen himself was destined to exemplify how low the papacy had fallen: he was thrown into prison and strangled. In the course of five years, from A.D. 896 to A.D. 900, five popes were consecrated. Leo V., who succeeded in A.D. 904, was in less than two months thrown into prison by Christopher, one of his chaplains, who usurped his place, and who, in his turn, was shortly expelled from Rome by Sergius III., who, by the aid of a military force, seized the pontificate, A.D. 905. This man, according to the testimony of the times, lived in criminal intercourse with the celebrated prostitute Theodora, who, with her daughters Marozia and Theodora, also prostitutes, exercised an extraordinary control over him. The love of Theodora was also shared by John X.: she first gave him the archbishopric of Ravenna, and then translated him to Rome, A.D. 915, as pope. John was not unsuited to the times; he organized a confederacy which perhaps prevented Rome from being captured by the Saracens, and the world was astonished and edified by the appearance of this warlike pontiff at the head of his troops. By the love of Theodora, as was said, he had maintained himself in the papacy for fourteen years; by the intrigues and hatred of her daughter Marozia he was overthrown. She surprised him in the Lateran Palace; killed his brother Peter before his face; threw him into prison, where he soon died, smothered, as it was asserted, with a pillow. After a short interval Marozia made her own son pope as John XI., A.D. 931. Many affirmed that Pope Sergius was his father, but she herself inclined to at-

tribute him to her husband Alberic, whose brother Guido she subsequently married. Another of her sons, Alberic, so called from his supposed father, jealous of his brother John, cast him and their mother Marozia into prison. After a time Alberic's son was elected pope, A.D. 956; he assumed the title of John XII., the amorous Marozia thus having given a son and a grandson to the papacy. John was only nineteen years old when he thus became the head of Christendom. His reign was characterized by the most shocking immoralities, so that the Emperor Otho I. was compelled by the German clergy to interfere. A synod was summoned for his trial in the Church of St. Peter, before which it appeared that John had received bribes for the consecration of bishops, that he had ordained one who was but ten years old, and had performed that ceremony over another in a stable; he was charged with incest with one of his father's concubines, and with so many adulteries that the Lateran Palace had become a brothel; he put out the eyes of one ecclesiastic and castrated another, both dying in consequence of their injuries; he was given to drunkenness, gambling, and the invocation of Jupiter and Venus. When cited to appear before the council, he sent word that "he had gone out hunting;" and to the fathers who remonstrated with him, he threateningly remarked "that Judas, as well as the other disciples, received from his master the power of binding and loosing, but that, as soon as he proved a traitor to the common cause, the only power he retained was that of binding his own neck." Hereupon he was deposed, and Leo VIII. elected in his stead, A.D. 963; but subsequently getting the upper hand, he seized his antagonists, cut off the hand of one, the nose, finger, tongue of others. His life was eventually brought to an end by the vengeance of a man whose wife he had seduced.

After such details it is almost needless to allude to the annals of succeeding popes: to relate that John XIII. was strangled in prison; that Boniface VII. imprisoned Benedict VII., and killed him by starvation; that John XIV. was secretly put to death in the dungeons of the Castle of St. Angelo; that the corpse of Boniface was dragged by the populace through the streets. The sentiment of reverence for the sovereign pontiff, nay, even of respect, had become extinct in Rome; throughout Europe the clergy were so shocked at the state of things, that, in their indignation, they began to look with approbation on the intention of the Emperor Otho to take from the Italians their privilege of appointing the successor of St. Peter, and confine it in his own family. But his kinsman, Gregory V., whom he placed on the pontifical throne, was very soon compelled by the Romans to fly; his excommunications and religious thunders were turned into derision by them; they were too well acquainted with the true nature of those terrors; they were living behind the scenes. A terrible punishment awaited the Anti-pope John

XVI. Otho returned into Italy, seized him, put out his eyes, cut off his nose and tongue, and sent him through the streets mounted on an ass, with his face to the tail, and a wine-bladder on his head. It seemed impossible that things could become worse; yet Rome had still to see Benedict IX., A.D. 1033, a boy of less than twelve years, raised to the apostolic throne. Of this pontiff, one of his successors, Victor III., declared that his life was so shameful, so foul, so execrable, that he shuddered to describe it. He ruled like a captain of banditti rather than a prelate. The people at last, unable to bear his adulteries, homicides, and abominations any longer, rose against him. In despair of maintaining his position, he put up the papacy to auction. It was bought by a presbyter named John, who became Gregory VI., A.D. 1045.

The papacy bought at auction, A.D. 1045, by Gregory VI.

More than a thousand years had elapsed since the birth of our Savior, and such was the condition of Rome. Well may the historian shut the annals of those times in disgust; well may the heart of the Christian sink within him at such a catalogue of hideous crimes. Well may he ask, Were these the vicegerents of God upon earth—these, who had truly reached that goal beyond which the last effort of human wickedness can not pass?

Conclusion respecting this biography.

Not until several centuries after these events did public opinion come to the true and philosophical conclusion—the total rejection of the divine claims of the papacy. For a time the evils

The philosophical conclusion at last attained.

were attributed to the manner of the pontifical election, as if that could by any possibility influence the descent of a power which claimed to be supernatural and under the immediate care of God. The manner of election was this. The Roman ecclesiastics recommended a candidate to the College of Cardinals; their choice had to be ratified by the populace of Rome, and, after that, the emperor must give his approval. There were thus to be brought into agreement the machinations of the lower ecclesiastics, the intrigues of the cardinals, the clamors of the rabble of Rome, and the policy of the emperor. Such a system must inevitably break to pieces with its own incongruities. Though we may wonder that men failed to see that it was merely a human device, we can not wonder that the emperors perceived the necessity of taking the appointments into their own hands, and that Gregory VII. was resolved to confine it to the College of Cardinals, to the exclusion of the emperor, the Roman people, and even of the rest of Christendom—an attempt in which he succeeded.

The evils imputed to the nature of papal election.

No one can study the development of the Italian ecclesiastical power without discovering how completely it depended on human agency, too often on human passion and intrigues; how completely wanting it was of any mark of the Divine construction and care—the offspring of man, not of God, and therefore bearing upon it the lineaments of human passions, human virtues, and human sins.

Human origin of the papacy.

CHAPTER XIII.

DIGRESSION ON THE PASSAGE OF THE ARABIANS TO THEIR AGE OF REASON.

INFLUENCE OF MEDICAL IDEAS THROUGH THE NESTORIANS AND JEWS.

The intellectual Development of the Arabians is guided by the Nestorians and the Jews, and is in the medical Direction.—The Basis of this Alliance is theological.

Antagonism of the Byzantine System to scientific Medicine.—Suppression of the Asclepiads.—Their Replacement by Miracle-cure.—The resulting Superstition and Ignorance.

Affiliation of the Arabians with the Nestorians and Jews.

1st. The Nestorians, their Persecutions, and the Diffusion of their sectarian Ideas.—They inherit the old Greek Medicine.

Sub-digression on Greek Medicine.—The Asclepiads.—Philosophical Importance of Hippocrates, who separates Medicine from Religion.—The School of Cnidos.—Its Suppression by Constantine.

Sub-digression on Egyptian Medicine.—It is founded on Anatomy and Physiology.—Dissections and Vivisections.—The great Alexandrian Physicians.

2d. The Jewish Physicians.—Their Emancipation from Superstition.—They found Colleges and promote Science and Letters.

The contemporary Tendency to Magic, Necromancy, the Black Art.—The Philosopher's Stone, Elixir of Life, etc.

The Arabs originate scientific Chemistry.—Discover the strong Acids, Phosphorus, etc.—Their geological Ideas.—Apply Chemistry to the Practice of Medicine.—Approach of the Conflict between the Saracenic material and the European supernatural System.

THE military operations of the Arabians, described in Chapter XI, overthrew the Byzantine political system, prematurely closing the Age of Faith in the East; their intellectual procedure gave rise to an equally important result, being destined, in the end, to close the Age of Faith in the West. The Saracens not only destroyed the Italian offshoot, they also impressed characteristic lineaments on the Age of Reason in Europe.

Events so important make it necessary for me to turn aside from the special description of European intellectual advancement, and offer a digression on the passage of the Arabians to their Age of Reason. It is impossible for us to understand their action in the great drama about to be performed unless we understand the character they had assumed.

In a few centuries the fanatics of Mohammed had altogether changed their appearance. Great philosophers, physicians, mathematicians, astronomers, alchemists, grammarians, had arisen among them. Letters and science, in all their various departments, were cultivated.

A nation stirred to its profoundest depths by warlike emigration, and

Importance of the influence of the Arabians.

Their intellectual progress.

therefore ready to make, as soon as it reaches a period of repose, a rapid intellectual advance, may owe the path in which it is about to pass to those who are in the position of pointing it out, or of officiating as teachers. The teachers of the Saracens were the Nestorians and the Jews. Their teachers were the Nestorians and Jews.

It has been remarked that Arabian science emerged out of medicine, and that in its cultivation physicians took the lead, its beginnings being in the pursuit of alchemy. In this chapter I have to describe the origin of these circumstances, and therefore must consider the state of Greek and Egyptian medicine, and relate how, wherever the Byzantine system could reach, true medical philosophy was displaced by relic and shrine-curing; and how it was, that while European ideas were in all directions reposing on the unsubstantial basis of the supernatural, those of the Saracens were resting on the solid foundation of a material support. Their scientific progress was through medicine.

When the Arabs conquered Egypt, their conduct was that of bigoted fanatics; it justified the accusation made by some against them, that they burned the Alexandrian library for the purpose of heating the baths. But scarcely were they settled in their new dominion when they exhibited an extraordinary change. At once they became lovers and zealous cultivators of learning.

The Arab power had extended in two directions, and had been submitted to two influences. In Asia it had been exposed to the Nestorians, in Africa to the Jews, both of whom had suffered persecution at the hands of the Byzantine government, apparently for the same opinion as that which had now established itself by the sword of Mohammed. The doctrine of the unity of God was their common point of contact. On this they could readily affiliate, and hold in common detestation the trinitarian power at Constantinople. He who is suffering the penalties of the law as a heretic, or who is pursued by judicial persecution as a misbeliever, will readily consort with others reputed to cherish similar infidelities. Brought into unison in Asia with the Nestorians, and in Africa with the Alexandrian Jews, the Arabians became enthusiastic admirers of learning. Causes of their union with Nestorians and Jews.

Not that there was between the three parties thus coalescing a complete harmony of sentiment in the theological direction; for, though the Nestorians and the Jews were willing to accept one half of the Arabian dogma, that there is but one God, they could not altogether commit themselves on the other, that Mohammed is his Prophet. Perhaps estrangement on this point might have arisen, but fortunately a remarkable circumstance opened the way for a complete understanding between them. Almost from the beginning the Nestorians had devoted themselves to the study of medicine, and had paid much attention to the structure and diseases of the body of man; Medicine becomes their neutral ground.

the Jews for long had produced distinguished physicians. These medical studies presented, therefore, a neutral ground on which the three parties could intellectually unite in harmony; and so thoroughly did the Arabians affiliate with these their teachers, that they acquired from them a characteristic mental physiognomy. Their physicians were their great philosophers; their medical colleges were their foci of learning. While the Byzantines obliterated science in theology, the Saracens illuminated it by medicine.

When Constantine the Great and his successors, under ecclesiastical influence, had declared themselves the enemies of worldly learning, it

became necessary for the clergy to assume the duty of seeing to the physical as well as the religious condition

of the people. It was unsuited to the state of things that physicians, whose philosophical tendencies inclined them to the pagan party, should be any longer endured. Their education in the Asclepiens imparted to them ideas in opposition to the new events. An edict of Constantine suppressed those establishments, ample provision being, however, made for replacing them with others more agreeable to the genius of Christianity. Hospitals and benevolent organizations were founded in the chief cities, and richly endowed with money and lands. In these mer-

ciful undertakings the empress-mother, Helena, was distinguished, her example being followed by many high-born ladies. The heart of women, which is naturally open to the desolate and afflicted, soon gives active expression to its sympathies when it is sanctified by a gentle Christian faith. In this, its legitimate direction, Christianity could display its matchless benevolence and charities. Organizations were introduced upon the most extensive and varied scale; one had charge of foundlings, another of orphans, another of the poor. We have already alluded to the *parabolani* or visitors, and of the manner in which they were diverted from their original intent.

But, noble as were these charities, they labored under an essential defect in having substituted for educated physicians well-meaning but unskillful ecclesiastics. The destruction of the Asclepiens was not attended by any suitably extensive measures for insuring professional educa-

tion. The sick who were placed in the benevolent institutions were, at the best, rather under the care of kind nurses

than under the advice of physicians; and the consequences are seen in the gradually increasing credulity and imposture of succeeding ages, until, at length, there was an almost universal reliance on miraculous interventions. Fetiches, said to be the relics of saints, but no better than those of tropical Africa, were believed to cure every disorder. To the shrines of saints crowds repaired as they had at one time to the temples of *Æsculapius*. The worshipers remained, though the name of the divinity was changed.

Byzantine suppression of medicine.

Substitution of public charities.

Gradual fall into miracle-cure.

Scarcely were the Asclepions closed, the schools of philosophy prohibited, the libraries dispersed or destroyed, learning branded as magic or punished as treason, philosophers driven into exile and as a class exterminated, when it became apparent that a void had been created which it was incumbent on the victors to fill. Among the great prelates, who was there to stand in the place of those men whose achievements had glorified the human race? Who was to succeed to Archimedes, Hipparchus, Euclid, Herophilus, Eratosthenes? who to Plato and Aristotle? The quackeries of miracle-cure, shrine-cure, relic-cure, were destined to eclipse the genius of Hippocrates, and nearly two thousand years to intervene between Archimedes and Newton, nearly seventeen hundred between Hipparchus and Kepler. A dismal interval of almost twenty centuries parts Hero, whose first steam-engine revolved in the Serapion, from James Watt, who has revolutionized the industry of the world. What a fearful blank! Yet not a blank, for it had its products—hundreds of patristic folios filled with obsolete speculation, oppressing the shelves of antique libraries, enveloped in dust, and awaiting the worm.

Never was a more disastrous policy adopted than the Byzantine suppression of profane learning. It is scarcely possible now to realize the mental degradation produced when that system was at its height. Many of the noblest philosophical and scientific works of antiquity disappeared from the language in which they had been written, and were only recovered, for the use of later and better ages, from translations which the Saracens had made into Arabic. The insolent assumption of wisdom by those who held the sword crushed every intellectual aspiration. Yet, though triumphant for a time, this policy necessarily contained the seeds of its own ignominious destruction. An inevitable day must come when so grievous a wrong to the human race must be exposed, and execrated, and punished—a day in which the poems of Homer would once more be read, the immortal statues of the Greek sculptors find worshipers, and the demonstrations of Euclid a consenting intellect. But that unfortunate, that audacious policy of usurpation once entered upon, there was no going back. He who is infallible must needs be immutable. In its very nature the action implied compulsion, compulsion implied the possession of power, and the whole policy insured an explosion the moment that the means of compression should be weak.

It is said that when the Saracens captured Alexandria, their victorious general sent to the khalif to know his pleasure respecting the library. The answer was in the spirit of the age. "If the books are confirmatory of the Koran, they are superfluous; if contradictory, they are pernicious. Let them be burnt." At this moment, to all human appearance, the Mohammedan autocrat was on the point of join-

Closing of the schools of medicine and philosophy.

Its deplorable results.

Insecurity of the Byzantine system.

Rigidity of the first Saracens.

ing in the evil policy of the Byzantine sovereign. But fortunately it was but the impulse of a moment, rectified forthwith, and a noble course of action was soon pursued. The Arab incorporated into his literature the wisdom of those he had conquered. In thus conceding to knowledge a free and unembarrassed career, and, instead of repressing, encouraging to the utmost all kinds of learning, did the Koran take any harm? It was a high statesmanship which, almost from the beginning of the impulse from Mecca, bound down to a narrow, easily comprehended, and easily expressed dogma the exacted belief, and in all other particulars let the human mind go free.

The noble policy quickly pursued. In the preceding paragraphs I have criticised the course of events, condemning or applauding the actions and the actors as circumstances seem to require, herein following the usual course, which implies that men can control affairs, and that the agent is to be held responsible for his deed. We have, however, only to consider the course of our own lives to be satisfied to how limited an extent such is the case. We are, as we often say, the creatures of circumstances. In that expression there is a higher philosophy than might at first sight appear. Our actions are not the pure and unmingled results of our desires; they are the offspring of many various and mixed conditions. In that which seems to be the most voluntary decision there enters much that is altogether involuntary—more, perhaps, than we generally suppose. And, in like manner, those who are imagined to have exercised an irresponsible and spontaneous influence in determining public policy, and thereby fixing the fate of nations, will be found, when we understand their position more correctly, to have been the creatures of circumstances altogether independent and irrespective of them—circumstances which they never created, of whose influence they only availed themselves. They were placed in a current which drifted them irresistibly along.

The true causes of the preceding events. From this more accurate point of view we should therefore consider the course of these events, recognizing the principle that the affairs of men pass forward in a determinate way, expanding and unfolding themselves. And hence we see that the things of which we have spoken as though they were matters of choice were, in reality, forced upon their apparent authors by the necessity of the times. But, in truth, they should be considered as the presentations of a certain phase of life which nations in their onward course sooner or later assume. In the individual, how well we know that a sober moderation of action, an appropriate gravity of demeanor, belong to the mature period of life; a change from the wanton willfulness of youth, which may be ushered in, or its beginning marked, by many accidental incidents: in one perhaps by domestic bereavements, in another by the loss of fortune, in a third by ill health. We are correct enough in imputing to such trials the

change of character, but we never deceive ourselves by supposing that it would have failed to take place had those circumstances not occurred. There runs an irresistible destiny in the midst of all these vicissitudes.

We may therefore be satisfied that, whatever may have been the particular form of the events of which we have had occasion to speak, their order of succession was a matter of destiny, Succession of affairs determined by law. and altogether beyond the reach of any individual. We may condemn the Byzantine monarchs, or applaud the Arabian khalifs—our blame and our praise must be set at their proper value. Europe was passing from its Age of Inquiry to its Age of Faith. In such a transition the predestined underlies the voluntary. There are analogies between the life of nations and that of an individual, who, though he may be in one respect the maker of his own fortunes for happiness or for misery, for good or for evil, though he remains here or goes there, as his inclinations prompt, though he does this or abstains from that, as he chooses, is nevertheless held fast by an inexorable fate—a fate which brought him into the world involuntarily so far as he was concerned, which presses him forward through a definite career, the stages of which are absolutely invariable—infancy, childhood, youth, maturity, old age, with all their characteristic actions and passions, and which removes him from the scene at the appointed time, in most cases against his will. So also it is with nations; the voluntary is only the outward semblance, covering, but hardly hiding the predetermined. Over the events of life we may have a control, but none whatever over the law of its progress. There is a geometry that applies to nations, an equation of their curve of advance. That no mortal man can touch.

We have now to examine in what manner the glimmering lamp of knowledge was sustained when it was all but ready to die out. Arabian science in its stage of sorcery. By the Arabians it was handed down to us. The grotesque forms of some of those who took charge of it are not without interest. They exhibit a strange mixture of the Neoplatonist, the Pantheist, the Mohammedan, the Christian. In such untoward times, it was perhaps needful that the strongest passions of men should be excited and science stimulated by inquiries for methods of turning lead into gold, or of prolonging life indefinitely. We have now to deal with the philosopher's stone, the elixir vitæ, the powder of projection, magical mirrors, perpetual lamps, the transmutation of metals. In smoky caverns under ground, where the great work is stealthily carried on, the alchemist and his familiar are busy with their alembics, curcubites, and pelicans, maintaining their fires for so many years that salamanders are asserted to be born in them.

Experimental science was thus restored, though under a very strange aspect, by the Arabians. Already it displayed its connection with medicine—a connection derived from the influence of the Nestorians

and the Jews. It is necessary for us to consider briefly the relations of each, and of the Nestorians first.

In Chapter IX. we have related the rivalries of Cyril, the Bishop of Alexandria, and Nestorius, the Bishop of Constantinople. The theological point of their quarrel was whether it is right to regard the Virgin Mary as the mother of God. To an Egyptian still tainted with antique superstition, there was nothing shocking in such a doctrine. His was the country of Isis. St. Cyril, who is to be looked upon as a mere ecclesiastical demagogue, found his purposes answered in adopting it without any scruple. But in Greece there still remained traces of the old philosophy. A recollection of the ideas of Plato had not altogether died out. There were some by whom it was not possible for the Egyptian doctrine to be received. Such, perhaps, was Nestorius, whose sincerity was finally approved by an endurance of persecutions, by his sufferings, and his death. He and his followers, insisting on the plain inference of the last verse of the first chapter of St. Matthew, together with the fifty-fifth and fifty-sixth verses of the thirteenth of the same Gospel, could never be brought to an acknowledgment of the perpetual virginity of the new queen of heaven. We have

They deny the virginity of the queen of heaven.

described the issue of the Council of Ephesus: the Egyptian faction gained the victory, the aid of court females being called in, and Nestorius, being deposed from his office, was driven, with his friends, into exile. The philosophical tendency of the vanquished was soon indicated by their actions. While their leader was tormented in an African oasis, many of them emigrated to the Euphrates, and founded the Chaldaean Church. Under its auspices the college at Edessa, with several connected schools, arose. In these were translated into Syriac many Greek and Latin works, as those of Aristotle and Pliny. It was the Nestorians who, in connection with the Jews, founded the

They begin to cultivate medicine.

medical college of Djondesabour, and first instituted a system of academical honors which has descended to our times. It was the Nestorians who were not only permitted by the khalifs the free exercise of their religion, but even intrusted with the education of the children of the great Mohammedan families, a liberality in striking contrast to the fanaticism of Europe. The Khalif Alraachid went so far as even to place all his public schools under the superintendence of John Masué, one of that sect. Under the auspices of these learned men the Arabian academies were furnished with translations of Greek authors, and vast libraries were collected in Asia.

The Arabs affiliate with them.

Through this connection with the Arabs, Nestorian missionaries found means to disseminate their form of Christianity all over Asia, as far as Malabar and China. The successful in-

Their great spread in the East.

trigues of the Egyptian politicians at Ephesus had no influence in those remote countries, the Asiatic churches of the Nestorian and Jacobite persuasions outnumbering eventually all the European Christians of the Greek and Roman churches combined. In later times the papal government has made great exertions to bring about an understanding with them, but in vain.

The expulsion of this party from Constantinople was accomplished by the same persons and policy concerned in destroying philosophy in Alexandria. St. Cyril was the representative of an illiterate and unscrupulous faction that had come into the possession of ^{and persecutions in the West.} power through intrigues with the females of the imperial court, and bribery of eunuchs and parasites. The same spirit that had murdered Hypatia tormented Nestorius to death. Of the contending parties, one was respectable and with a tincture of learning, the other ignorant, and not hesitating at the employment of brute force, deportation, assassination. — Unfortunately for the world, the unscrupulous party carried the day.

By their descent, the Nestorians had become the depositaries of the old Greek medical science. Its great names they revered. ^{They inherit the old Greek medicine.} They collected, with the utmost assiduity, whatever works remained on medical topics, whether of a Greek or Alexandrian origin, from the writings of Hippocrates, called, with affectionate veneration by his successors, "The Divine Old Man," down to those of the Ptolemaic school.

Greek medicine arose in the temples of Æsculapius, whither the sick were in the habit of resorting for the assistance of the god. It does not appear that any fee was exacted for the celestial advice; but the gratitude of the patient was frequently displayed ^{Origin of Greek medicine—Asclepiæ.} by optional gifts, and votive tablets presented to the temple, setting forth the circumstances of the case, were of value to those disposed to enter on the study thereof. The Asclepiæ thus became both hospitals and schools. They exercised, from their position, a tendency to incorporate medical and ecclesiastical pursuits. At this time it was universally believed that every sickness was due to the anger of some offended god, and especially was this supposed to be the case in epidemics and plagues. Such a paralyzing notion was necessarily inconsistent with any attempt at the relief of communities by the exercise of sanitary measures. In our times it is still difficult to remove from the minds of the illiterate classes this ancient opinion, or to convince them that under such visitations we ought to help ourselves, and not expect relief by penance and supplications, unless we join therewith rigorous personal, domestic, municipal cleanliness, fresh air, and light. The theological doctrine of the nature of disease indicated its means of cure. For Hippocrates was reserved ^{Hippocrates destroys the theological theory of disease.}

the great glory of destroying them both, replacing them by more practical and material ideas, and, from the votive tablets, traditions, and other sources, together with his own admirable observations, compiling a body of medicine. The necessary consequence of his great success was the separation of the pursuits of the physician from those of the priest. Not that so great a revolution, implying the diversion of profitable gains from the ancient channel, could have been accomplished without a struggle. We should reverence the memory of Hippocrates for the complete manner in which he effected that object.

Of the works attributed to Hippocrates, many are doubtless the production of his family, his descendants, or his pupils. The inducements to literary forgery in the times of the Ptolemies, who paid very high prices for books of reputation, has been the cause of much difficulty among critics in determining such questions of authorship. The works indisputably written by Hippocrates display an extent of knowledge answering to the authority of his name; his vivid descriptions have never been excelled, if indeed they have ever been equaled. The Hippocratic face of the dying is still retained in our medical treatises in the original terms, without any improvement.

In his medical doctrine, Hippocrates starts with the postulate that the body is composed of the four elements. From these are formed the four cardinal humors. He thinks that the humors are liable to undergo change; that health consists in their right constitution and proper adjustment as to quantity; disease in their impurities and inequalities; that the disordered humors undergo spontaneous changes or coction, a process requiring time, and hence the explanation of critical days and critical discharges. The primitive disturbance of the humors he attributed to a great variety of causes, chiefly to the influence of surrounding physical circumstances, such as heat, cold, air, water. Unlike his contemporaries, he did not impute all the afflictions of man to the anger of the gods. Along with those influences of an external kind, he studied the special peculiarities of the human system, how it is modified by climate and manner of life, exhibiting different predispositions at different seasons of the year. He believed that the innate heat of the body varies with the period of life, being greatest in infancy and least in old age, and that hence morbid agents affect us with greater or less facility at different times. For this reason it is that the physician should attend very closely to the condition of those in whom he is interested as respects their diet and exercise, for thereby he is able not only to regulate their general susceptibility, but also to exert a control over the course of their diseases.

Referring diseases in general to the condition or distribution of the humors, for he regards inflammation as the passing of blood into parts not previously containing it, he considers that so long as those liquids

occupy the system in an unnatural or adulterated state, disease continues; but as they ferment or undergo coction, various characteristic symptoms appear, and, when their elaboration is completed, they are discharged by perspiration or other secretions, by alvine dejections, etc. But where such a general relief of the system is not accomplished, the peccant humors may be localized in some particular organ or special portion, and erysipelatous inflammation, mortification, or other such manifestations ensue. It is in aiding this elimination from the system that the physician may signally manifest his skill. His power is displayed much more at this epoch than by the control he can exert over the process of coction. Now may he invoke the virtues of the hellebores, the white and the black; now may he use elaterium. The critical days which answer to the periods of the process of coction are to be watched with anxiety, and the correspondence of the state of the patient with the expected condition which he ought to show at those epochs ascertained. Hence the physician may be able to predict the probable course of the disease during the remainder of its career, and gather true notions as to the practice it would be best for him to pursue to aid Nature in her operations.

It thus appears that the practice of medicine in the hands of Hippocrates had reference rather to the course or career of disease The nature of his practice. than to the special nature thereof. Nothing more than this masterly conception is wanted to impress us with his surprising scientific power. He watches the manner in which the humors are undergoing their fermenting coction, the phenomena displayed in the critical days, the aspect and nature of the critical discharges. He does not attempt to check the process going on, but simply to assist the natural operation.

When we consider the period at which Hippocrates lived, B.C. 400, and the circumstances under which he had studied medicine, we can not fail to admire the very great advance he made. His merit is conspicuous in rejecting the superstitious tendency of his times by teaching his disciples to impute a proper agency to physical causes. He altogether discarded the imaginary influences then in vogue. For the gods he substituted, with singular felicity, impersonal Nature. It was the interest of those who were connected with the temples of Æsculapius to refer all the diseases of men to supernatural agency; their doctrine being that every affliction should be attributed to the anger of some offended god, and restoration to health most certainly procured by conciliating his power. So far, then, as such interests were concerned, any contradiction of those doctrines, any substitution of the material for the supernatural, must needs have met with reprehension. Yet such opposition seems in no respect to have weighed with this great physician, who developed his theory and pursued his practice without giving himself any

concern in that respect. He bequeathed an example to all who should succeed him in his noble profession, and taught them not to hesitate in encountering the prejudices and passions of the present for the sake of the truth, and to trust for their reward in the just appreciation of a future age.

With such remarks we may assert that the medical philosophy of Hippocrates is worthy of our highest admiration, since it exhibits the scientific conditions of deduction and induction. The theory itself is compact and clear; its lineaments are completely Grecian. It presents, to one who will contemplate it with a due allowance for its times, the characteristic quick-sightedness, penetration, and power of the Greek mind, fully vindicating for its author the title which has been conferred upon him by his European successors—the Father of Medicine—and perhaps inducing us to excuse the enthusiastic assertion of Galen, that we ought to reverence the words of Hippocrates as the voice of God.

The Hippocratic school of Cos found a rival in the school of Cnidos, which offered not only a different view of the nature of disease, but also taught a different principle for its cure. The Onidians paid more particular attention to the special symptoms in individual cases, and pursued a less active treatment, declining, whenever they could, a resort to drastic purgatives, venesection, or other energetic means. As might be expected, the professional activity of these schools called into existence many able men, and produced many excellent works: thus Philiston wrote on the regimen for persons in health; Diocles on hygiene and gymnastics; Praxagoras on the pulse, showing that it was a measure of the force of disease. The Asclepion of Cnidos continued until the time of Constantine, when it was destroyed along with many other pagan establishments. The union between the priesthood and the profession was gradually becoming less and less close; and, as the latter thus separated itself, divisions or departments arose in it, both as regards subjects, such as pharmacy, surgery, etc., and also as respects the position of its cultivators, some pursuing it as a liberal science, and some as a mere industrial occupation. In those times, as in our own, many who were not favored with the gifts of fortune were constrained to fall into the latter ranks. Thus Aristotle, than whom few have ever exerted a greater intellectual influence upon humanity, after spending his patrimony in liberal pursuits, kept an apothecary's shop at Athens. Aristotle the druggist, behind his counter, selling medicines to chance customers, is Aristotle the great writer, whose dictum was final with the schoolmen of the Middle Ages. As a general thing, however, the medical professors were drawn from the philosophical class. Outside of these divisions, and though in all ages continually repudiated by the profession,

His doctrine is truly scientific.

The school of Cnidos.

Is destroyed by Constantine.

Classes of physicians.

yet continually hovering round it, was a host of impostors and quacks, as there will always be so long as there are weak-minded and shallow men to be deluded, and vain and silly women to believe.

When the Alexandrian Museum was originated by Ptolemy Philadelphus, its studies were arranged in four faculties—literature, mathematics, astronomy, medicine. These divisions are, how-
Egyptian medicine. The Museum.

ever, to be understood comprehensively: thus, under the faculty of medicine were included such subjects as natural history. The physicians who received the first appointments were Cleombrotus, Herophilus, and Erasistratus; among the subordinate professors was Philo-Stephanus, who had charge of natural history, and was directed to write a book on Fishes. The elevated ideas of the founder can not be better illustrated than by the manner in which he organized his medical school. It was upon the sure basis of anatomy. Herophilus and his colleagues were authorized to resort to the dissection of the dead, and to ascertain, by that only reliable method, the true
Phladelphus founda medicine on anatomy.

structure of the human body. The strong hand of Ptolemy resolutely carried out his design, though in a country where popular sentiment was strongly opposed to such practices, hitherto unheard of in the world. To touch a corpse in Egypt was an abomination. Nor was it only this great man's intention to ascertain the human structure; he also took measures to discover the mode in which
He authorizes dissection and human vivisection.

its functions are carried forward, the manner in which it works. To this end he authorized his anatomists to make vivisections both of animals, and also criminals who had been condemned to death, herein finding for himself that royal road in physiology which Euclid once told him, at a dinner in the Museum, did not exist in geometry, and defending the act from moral criticism by the plea that, as the culprits had already forfeited their lives to the law, it was no injury to make them serviceable to the interests of humanity. He-
Physicians of the Alexandrian school.

rophilus had been educated at Cos; his pathological views were those known as humoralism; his treatment active, after the manner of Hippocrates, upon whose works he wrote commentaries. His original investigations were numerous; they were embodied, with his peculiar views, in treatises on the practice of medicine; on obstetrics; on the eye; on the pulse, which he properly referred to contractions of the heart. He was aware of the existence of the lacteals, and their anatomical relation to the mesenteric glands. Erasistratus, his colleague, was a pupil of Theophrastus and Chrysippus: he, too, cultivated anatomy. He described the structure of the heart, its connections with the arteries and veins, but fell into the mistake that the former vessels were for the conveyance of air, the latter for blood. He knew that there are two kinds of nerves, and those of sensation. He referred all diseases to his practice.

from the received methods of Hippocrates in observing a less active treatment.

By these physicians the study of medicine in Alexandria was laid upon the solid foundation of anatomy. Besides them there were many other instructors in specialties; and, indeed, the temple of Serapis was used for a hospital, the sick being received into it, and persons studying medicine admitted for the purpose of familiarizing themselves with the appearance of disease, precisely as in such institutions at the present time. Of course, under such circumstances, the departments of surgery and pharmacy received many improvements, and produced many able men. Among these improvements may be mentioned new operations for lithotomy, instruments for crushing calculi, for reducing dislocations, etc. The active commerce of Egypt afforded abundant opportunity for extending the materia medica by the introduction of a great many herbs and drugs.

The medical school of Alexandria, which was thus originally based upon dissection, in the course of time lost much of its scientific spirit. But the influence of the first teachers may be traced through many subsequent ages. Thus Galen divides the profession in his time into Herophilians and Erasistratians. Various sects had arisen in the course of events, as the Dogmatists, who asserted that diseases can only be treated correctly by the aid of a knowledge of the structure and functions, the action of drugs, and the changes induced in the affected parts; they insisted, therefore, upon the necessity of anatomy, physiology, therapeutics, and pathology. They claimed a descent from Hippocrates. Their antagonists, the Empirics, ridiculed such knowledge as fanciful or unattainable, and relied on experience alone. These subdivisions were not limited to sects; they may also be observed under the form of schools. Even Erasistratus himself, toward the close of his life, through some dispute or misunderstanding, appears to have left the Museum and established a school at Smyrna. The study of the various branches of medicine was also pursued by others out of the immediate ranks of the profession. Mithridates, king of Pontus, thus devoted himself to the examination of poisons and the discovery of antidotes.

What a fall from this scientific medicine to the miracle-cure which soon displaced it! What a descent from Hippocrates and the great Alexandrian physicians to the shrines of saints and the monks!

To the foregoing sketch of the state of Greek medicine in its day of glory, I must add an examination of the same science among the Jews subsequently to the second century; it is necessary for the proper understanding of the origin of Saracen learning.

In philosophy the Jews had been gradually emancipating themselves

from the influence of ancient traditions; their advance in this direction is shown by the active manner in which they aided in the development of Neo-platonism. After the destruction of Jerusalem all Syria and Mesopotamia were full of Jewish schools; but the great philosophers, as well as the great merchants of the nation, were ^{their emancipation from the supernatural.} residents of Alexandria. Persecution and dispersion, if they served no other good purpose, weakened the grasp of the ecclesiastic. Perhaps, too, repeated disappointments in an expected coming of a national temporal Messiah had brought those who were now advanced in intellectual progress to a just appreciation of ancient traditions. In this mental emancipation their physicians took the lead. For long, while their pursuits were yet in infancy, a bitter animosity had been manifested toward them by the Levites, whose manner of healing was by prayer, expiatory sacrifice, and miracle; or, if they descended to less supernatural means, by an application of such remedies as are popular with the vulgar every where. Thus, to a person bitten by a mad dog, they would give the diaphragm of a dog to eat. As examples of a class of men soon to take no obscure share in directing human progress may be mentioned Hannina, A.D. 205, often spoken of by his successors as the earliest of Jewish physicians; Samuel, equally distinguished as an astronomer, accoucheur, and oculist, the inventor of a collyrium which bore his name; Rab, an anatomist, who wrote a treatise on the construction of the body of man as ascertained by dissections, thereby attaining such celebrity that the people, after his death, used the earth of his grave as a medicine; Abba Oumna, whose study of insanity plainly shows that he gave a material interpretation to the national doctrine of possession by devils, and replaced that strange delusion by the scientific explanation of corporeal derangement. This honorable physician made it a rule never to take a fee from the poor, and never to make any difference in his assiduous attention between them and the rich. These men may be taken as a type of their successors to the seventh century, when the Oriental schools were broken up in consequence of the Arab military movements. In the Talmudic literature there are all the indications of a transitional state, so far as medicine is concerned; the supernatural seems to be passing into the physical, the ecclesiastical is mixed up with the exact: thus a rabbi may cure disease by the ecclesiastical operation of laying on of hands; but of febrile disturbances, an exact, though erroneous explanation is given, and paralysis of the hind legs of an animal is correctly referred to the pressure of a tumor on the spinal cord. Some of its aphorisms are not devoid of amusing significance: "Any disease, provided the bowels remain open; any kind of pain, provided the heart remain unaffected; any kind of uneasiness, provided the head is not attacked; all manner of evils, except it be a bad woman."

At first, after the fall of the Alexandrian school, it was all that the

Jewish physicians could do to preserve the learning that had descended to them. But when the tumult of Arabic conquest was over, we find them becoming the advisers of crowned heads, and exerting, by reason of their advantageous position, their liberal education, their enlarged views, a most important influence on the intellectual progress of humanity. Maser Djaivah, physician to the Khalif Moawiyah, was distinguished at once as a poet, a critic, a philosopher; Kalid translated many books from Greek; Haroun, a physician of Alexandria, whose Pandects, a treatise unfortunately now lost, are said to have contained the first elaborate description of the small-pox and method of its treatment. Isaac Ben Emran wrote an original treatise on poisons and their symptoms, and others followed his example. The Khalif Al Raschid, who maintained political relations with Charlemagne by means of Jewish envoys, set that monarch an example by which indeed he was not slow to profit, in actively patronizing the medical college at Djondesabour, and founding a university at Bagdad. He prohibited any person from practicing medicine until after a satisfactory examination before one of those faculties. In the East the theological theory of disease and of its cure was fast passing away. Of the school at Bagdad, Joshua ben Nun is said to have been the most celebrated professor, the school itself actively promoting the translation of Greek works into Arabic—not alone works of a professional, but also those of a general kind. In this manner the writings of Plato and Aristotle were secured; indeed, it is said that almost every day camels laden with volumes were entering the gates of Bagdad. To add to the supply, the Emperor Michael III. was compelled by treaty to furnish Greek books. The result of this intellectual movement could be no other than a diffusion of light. Schools arose in Bassora, Ispahan, Samarcand, Fez, Morocco, Sicily, Cordova, Seville, Granada.

Through the Nestorians and the Jews the Arabs thus became acquainted with the medical science of Greece and Alexandria; but to this was added other knowledge of a more sinister kind, derived from Persia, or perhaps remotely from Chaldee sources, the Nestorians having important Church establishments in Mesopotamia, and the Jews long familiar with that country; indeed, from thence their ancestors originally came. More than once its ideas had modified their national religion. This extraneous knowledge was of an astrological or magical nature, carried into practice by incantations, amulets, charms, and talismans. Its fundamental principle was that the planetary bodies exercise an influence over terrestrial things. As seven planets and seven metals were at that time known—the sun, the moon, Mars, Mercury, Jupiter, Venus, Saturn, being the planets of astrology—a due allotment was made.

The Arabs affiliate with them.

Rise of Jewish physicians to influence.

They found medical colleges.

and promote science and literature.

Intermingling of magic and sorcery.

Dedication of portions of matter and time to the supernatural.

Gold was held sacred to the sun, silver to the moon, iron to Mars, etc. Even the portions of time were in like manner dedicated: the seven days of the week were respectively given to the seven planets of astrology. The names imposed on those days, and the order in which they occur, are obviously connected with the Ptolemaic hypothesis of astronomy, each of the planets having an hour assigned to it in its order of occurrence, and the planet ruling the first hour of each day giving its name to that day. Thus arranged, the week is a remarkable instance of the longevity of an institution adapted to the wants of man. It has survived through many changes of empire, has forced itself on the ecclesiastical system of Europe, which, unable to change its idolatrous aspect, has encouraged the vulgar error that it owes its authenticity to the Holy Scriptures, an error too plainly betrayed by the pagan names that the days bear, and also by their order of occurrence. It was unknown to the classical ancients and to the inspired penmen. Origin of the week.

These notions of dedicating portions of matter or of time to the supernatural were derived from the doctrine of a universal spirit or soul of the world, extensively believed in throughout the East. It underlies, as we have seen in Chapter III., all Oriental theology, and is at once a very antique and not unphilosophical conception. Of this soul the spirit of man was by many supposed to be a particle like a spark given off from a flame. All other things, animate or inanimate, brutes, plants, stones, nay, even natural forms, rivers, mountains, cascades, grottoes, have each an indwelling and animating spirit.

Amulets and charms, therefore, did not derive their powers from the material substance of which they consisted, but from this indwelling spirit. In the case of man, his immaterial principle was believed to correspond to his personal bodily form. Of the two great sects into which the Jewish nation had been divided, the Pharisees accepted the Assyrian doctrine; but the Sadducees, who denied the existence of any such spirit, boasted that theirs was the old Mosaic faith, and denounced their antagonists as having been contaminated at the time of the Babylonish captivity, before which catastrophe, according to them, these doctrines were unheard of in Jerusalem. In Alexandria, among the Alexandrian necromancy. leading men there were many adherents to these opinions.

Thus Plotinus wrote a book on the association of demons with men, and his disciple Porphyry proved practically the possibility of such an alliance; for, repairing to the temple of Isis along with Plotinus and a certain Egyptian priest, the latter, to prove his supernatural power, offered to raise up the spirit of Plotinus himself in a visible form. A magical circle was drawn on the ground, surrounded with the customary astrological signs, the invocation commenced, the spirit appeared, and Plotinus stood face to face with his own soul. In this successful experiment it is needless to inquire how far the necromancer depended upon

optical contrivances, and how far upon an alarmed imagination. Perhaps there was somewhat of both; but if thus the spirit of a living man could be called up, how much more likely the souls of the dead.

In reality, these wild doctrines were connected with Pantheism, which was secretly believed in every where; for, though, in a coarse mode of expression, a distinction seemed thus to be made between matter and spirit, or body and soul, it was held by the initiated that matter itself is a mere shadow of the spirit, and the body a delusive semblance of the soul.

In the eighth century, many natural facts of a surprising and unaccountable description, well calculated to make a profound impression upon those who witnessed them, had accumulated. They were such as are now familiar to chemists. Vessels tightly closed were burst open when tormented in the fire, apparently by some invisible agency; intangible vapors condensed into solids; from colorless liquids gaudy precipitates were suddenly called into existence; flames were disengaged without any adequate cause; explosions took place spontaneously. So much that was unexpected and unaccountable justified the title of "the occult science," "the black art." From being isolated marvels unconnected with one another, these facts had been united. The Chaldee notions of a soul of the world, and of indwelling spirits, had furnished a thread on which all these pearls, for such they proved to be, might be strung.

With avidity—for there is ever a charm in the supernatural—did the Arabs receive from their Nestorian and Jewish medical instructors these mystical interpretations along with true knowledge. And far from resting satisfied with what their masters had thus delivered, they proceeded forthwith to improve and extend it for themselves. They submitted all kinds of substances to all kinds of operations, greatly improving the experimental processes they had been taught. By exposing various bodies to the fire, they found it possible to extract from them more refined portions, which seemed to concentrate in themselves the qualities appertaining in a more diffuse way to the substances from which they had been drawn. These, since they were often invisible at their first disengagement, yet capable of bursting open the strongest vessels, and sometimes of disappearing in explosions and flames, they concluded must be the indwelling spirit or soul of the body, from which the fire had driven them forth. It was the Chaldee doctrine realized. Thus they obtained the spirit of wine, the spirit of salt, the spirit of nitre. We still retain in commerce these designations, though their significance is lost. When first introduced they had a strictly literal meaning. Alchemy, with its essences, quintessences, and spirits, was Pantheism materialized. God was seen to be in every thing, in the abstract as well as the concrete, in numbers as well as realities.

These ideas originate in Pantheism.

The Arabians fall into these delusions.

Anticipating what will have hereafter to be considered in detail, I may here remark that it was not the Mohammedan alone who delivered himself up to these mystic delusions; Christendom was prepared for them also. In its opinion, the earth, the air, the sea, ^{and the Christians also.} were full of invisible forms. With more faith than even by paganism itself were the supernatural powers of the images of the gods accepted, only it was imputed to the influence of devils. The lunatic was troubled by a like possession. If a spring discharged its waters with a periodical gushing of carbonic acid gas, it was agitated by an angel; if an unfortunate descended into a pit and was suffocated by the mephitic air, it was by some dæmon who was secreted; if the miner's torch produced an explosion, it was owing to the wrath of some malignant spirit guarding a treasure, and whose solitude had been disturbed. There was no end to the stories, duly authenticated by the best human testimony, of the occasional appearance of such spirits under visible forms; there was no grotto or cool thicket in which angels and genii had not been seen; no cavern without its dæmons. Though the names were not yet given, it was well understood that the air had its sylphs, the earth its gnomes, the fire its salamanders, the water its undines; to the day belonged its apparitions, to the night its fairies. The foul air of stagnant places assumed the visible form of dæmons of abominable aspect; the explosive gases of mines took on the shape of pale-faced, malicious dwarfs, with leathery ears hanging down to their shoulders, and in garments of gray cloth. Philosophical conceptions can never be disentangled from social ideas; the thoughts of man will always gather a tincture from the intellectual medium in which he lives.

In Christendom, however, the chief application of these doctrines was to the relics of martyrs and saints. As with the amulets and talismans of Mesopotamia, these were regarded as possessing supernatural powers. They were a sure safeguard against evil spirits, and an unfailing relief in sickness.

A singular force was given to these mystic ideas by the peculiar direction they happened to take. As there are veins of water in the earth, and apertures through which the air can gain access, an analogy was inferred between its structure and that of an animal, leading to an inference of a similarity of functions. From this came the theory of the development of metals in its womb under the influence of the planets, the pregnant earth spontaneously producing ^{Transmutation of metals—Alchemy.} gold and silver from baser things after a definite number of lunations. Already, however, in the doctrine of the transmutation of metals, it was perceived that to Nature the lapse of time is nothing—to man it is every thing. To Nature, when she is transmuting a worthless into a better metal, what signify a thousand years? To man, half a century embraces the period of his intellectual activity. The aim of the cultivator

of the sacred art should be to shorten the natural term; and, since we observe the influence of heat in hastening the ripening of fruits, may we not reasonably expect that duly regulated degrees of fire will answer the purpose? by an exposure of base material in the furnace for a proper season, may we not anticipate the wished-for event? The Emperor Caligula, who had formerly tried to make gold from orpiment Philosopher's stone. by the force of fire, was only one of a thousand adepts pursuing a similar scheme. Some trusted to the addition of a material substance in aiding the fire to purge away the dross of the base body submitted to it. From this arose the doctrine of the powder of projection and the philosopher's stone.

This doctrine of the possibility of transmuting things into forms essentially different steadily made its way, leading, in the material direction, to alchemy, the art of making gold and silver out of Transmutation and transubstantiation. baser metals, and in theology to transubstantiation. Transmutation and transubstantiation were twin sisters, destined for a world-wide celebrity; one became allied to the science of Mecca, the other to the theology of Rome.

While thus the Arabs joined in the pursuit of alchemy, their medical tendencies led them simultaneously to cultivate another ancient delusion, the discovery of a universal panacea or elixir which The elixir of life. should cure all diseases and prolong life forever. The mystical experimenters for centuries had been ransacking all nature, from the yellow flowers which are sacred to the sun, and gold his emblem and representative on earth, down to the vilest excrements of the human body. As to gold, there had gathered round that metal many fictitious excellencies in addition to its real values; it was believed that in some preparation of it would be found the elixir vitæ. This was the explanation of the unwearied attempts at making potable gold, for it was universally thought that if that metal could be obtained in a dissolved state, it would constitute the long-sought panacea. Nor did it seem impossible so to increase the power of water as to impart to it new virtues, and thereby enable it to accomplish the desired solution. Were there not natural waters of very different properties? were there not some that could fortify the memory, others destroy it; some re-enforce the spirits, some impart dullness, and some, which were highly prized, that could secure a return of love? It had been long known that both natural and artificial waters can permanently affect the health, and that instruments may be made to ascertain their qualities. Zosimus, the Panopolitan, had described in former times the operation of distillation, by which it may be purified; the Arabs called the apparatus Chemical waters. for conducting that experiment an alembic. His treatise on the virtues and composition of waters was conveyed under the form of a dream, in which there flit before us fantastically white-haired priests

sacrificing before the altar; caldrons of boiling water, in which there are walking about men a span long; brazen-clad warriors in silence reading leaden books, and sphinxes with wings. In such incomprehensible fictions knowledge was purposely, and ignorance conveniently concealed.

The practical Arabs had not long been engaged in these fascinating but wild pursuits, when results of very great importance began to appear. In a scientific point of view, the discovery of the strong acids laid the true foundation of chemistry; in a political point of view, the invention of gunpowder revolutionized the world.

The Arabs originate scientific chemistry.

There were several explosive mixtures. Automatic fire was made from equal parts of sulphur, saltpetre, and sulphide of antimony, finely pulverized and mixed into a paste, with equal parts of juice of the black sycamore and liquid asphaltum, a little quick-lime being added. It was directed to keep the material from the rays of the sun, which would set it on fire.

Gunpowder and fire-works.

Of liquid or Greek fire we have not a precise description, since the knowledge of it was kept at Constantinople as a state secret. There is reason, however, to believe that it contained sulphur and nitrate of potash mixed with naphtha. Of gunpowder, Marcus Græcus, whose date is probably to be referred to the close of the eighth century, gives the composition explicitly. He directs us to pulverize in a marble mortar one pound of sulphur, two of charcoal, and six of saltpetre. If some of this powder be tightly rammed in a long narrow tube closed at one end, and then set on fire, the tube will fly through the air: this is clearly the rocket. He says that thunder may be imitated by folding some of the powder in a cover and tying it up tightly: this is the cracker. It thus appears that fire-works preceded fire-arms. To the same author we are indebted for receipts for making the skin incombustible, so that we may handle fire without being burnt. These, doubtless, were received as explanations of the legends of the times, which related how miracle-workers had washed their hands in melted copper, and sat at their ease in flaming straw.

Incombustible men.

Among the Saracen names that might be mentioned as cultivators of alchemy, we may recall El-Rasi, Ebid Durr, Djafar or Geber, Toghragé, who wrote an alchemical poem, and Dschildegi, one of whose works bears the significant title of "The Lantern." The definition of alchemy by some of these authors is very striking: the science of the balance, the science of weight, the science of combustion.

To one of these chemists, Djafar, our attention may for a moment be drawn. He lived toward the end of the eighth century, and is honored by Rhases, Avicenna, and Kalid, the great Arabic physicians, as their master. His name is memorable in chemis-

Djafar discovers nitric acid and aqua regia.

try, since it marks an epoch in that science of equal importance to that of Priestley and Lavoisier. He is the first to describe nitric acid and aqua regia. Before him no stronger acid was known than concentrated vinegar. We can not conceive of chemistry as not possessing acids. Well, then, may Roger Bacon speak of him as the *magister magistrorum*. He has perfectly just notions of the nature of spirits or gases, as we call them; thus he says, "Oh, son of the doctrine, when spirits fix themselves in bodies, they lose their form; in their nature they are no longer what they were. When you compel them to be disengaged again, this is what happens: either the spirit alone escapes with the air, and the body remains fixed in the alembic, or the spirit and body escape together at the same time." His doctrine respecting the nature of the metals, though erroneous, was not without a scientific value. A metal he considers to be a compound of sulphur, mercury, and arsenic, and hence he infers that transmutation is possible by varying the proportion of those ingredients. He knows that a metal, when calcined, increases in weight, a discovery of the greatest importance, as eventually brought to bear in the destruction of the doctrine of Phlogiston of Stahl, and which has been imputed to Europeans of a much later time. He describes the operations of distillation, sublimation, filtration, various chemical apparatus, water-baths, sand-baths, cupels of bone-earth, of the use of which he gives a singularly clear description. A chemist reads with interest Djafar's antique method of obtaining nitric acid by distilling in a retort Cyprus vitriol, alum, and saltpetre. He sets forth its corrosive power, and shows how it may be made to dissolve even gold itself, by adding a portion of sal ammoniac. Djafar may thus be considered as having solved the grand alchemical problem of obtaining gold in a potable state. Of course, many trials must have been made on the influence of this solution on the animal system, respecting which such extravagant anticipations had been entertained. The disappointment that ensued was doubtless the cause that the records of these trials have not descended to us.

With Djafar may be mentioned Rhazes, born A.D. 860, physician-in-chief to the great hospital at Bagdad. To him is due the first description of the preparation and properties of sulphuric acid. He obtained it, as the Nordhausen variety is still made, by the distillation of dried green vitriol. To him are also due the first indications of the preparation of absolute alcohol, by distilling spirit of wine from quick-lime. As a curious discovery made by the Saracens may be mentioned the experiment of Achild Bechil, who, by distilling together the extract of urine, clay, lime, and powdered charcoal, obtained an artificial carbuncle, which shone in the dark "like a good moon." This was phosphorus.

and that oxidation
increases weight.

He solves the prob-
lem of potable gold.

Rhazes discovers
sulphuric acid.

Bechil discovers
phosphorus.

And now there arose among Arabian physicians a correctness of thought and breadth of view altogether surprising. It might almost be supposed that the following lines were written by one of our own contemporaries; they are, however, extracted from a chapter of Geological views of Avicenna. Avicenna on the origin of mountains. This author was born in the tenth century. "Mountains may be due to two different causes. Either they are effects of upheavals of the crust of the earth, such as might occur during a violent earthquake, or they are the effect of water, which, cutting for itself a new route, has denuded the valleys, the strata being of different kinds, some soft, some hard. The winds and waters disintegrate the one, but leave the other intact. Most of the eminences of the earth have had this latter origin. It would require a long period of time for all such changes to be accomplished, during which the mountains themselves might be somewhat diminished in size. But that water has been the main cause of these effects is proved by the existence of fossil remains of aquatic and other animals on many mountains." Avicenna also explains the nature of petrifying or incrusting waters, and mentions aerolites, out of one of which a sword-blade was made, but he adds that the metal was too brittle to be of any use. A mere catalogue of some of the works of Avicenna will show the then existing state of the Arabian mind: 1. On the Utility and Advantage of His works indicate the attainment of the times. Science; 2. Of Health and Remedies; 3. Canons of Physic; 4. On Astronomical Observations; 5. Mathematical Theorems; 6. On the Arabic Language and its Properties; 7. On the Origin of the Soul and Resurrection of the Body; 8. Demonstration of Collateral Lines on the Sphere; 9. An Abridgment of Euclid; 10. On Finiteness and Infinity; 11. On Physics and Metaphysics; 12. An Encyclopedia of Human Knowledge, in 20 vols., etc., etc. The perusal of such a catalogue is sufficient to excite profound attention when we remember what was the contemporaneous state of Europe.

The pursuit of the elixir made a well-marked impression upon Arab experimental science, confirming it in its medical applica- Effect of the search for the elixir on practical medicine. tion. At the foundation of this application lay the principle that it is possible to relieve the diseases of the human body by purely material means. As the science advanced it gradually shook off its fetichisms, the spiritual receding into insignificance, the material coming into bolder relief. Not, however, without great difficulty was a way forced for the great doctrine that the influence of substances on the constitution of man is altogether of a material kind, and not at all due to any indwelling or animating spirit; that it is of no kind of use to practice incantations over drugs, or to repeat prayers over the mortar in which medicines are being compounded, since the effect will be the same, whether such has been done or not; that there is no kind of efficacy in amulets, no virtue in charms; and that, though saint-relics may

serve to excite the imagination of the ignorant, they are altogether beneath the attention of the philosopher.

This last sentiment it was which brought Europe and Africa into intellectual collision. The Saracen and Hebrew physicians had become thoroughly materialized. Throughout Christendom the practice of medicine was altogether supernatural. It was in the hands of ecclesiastics; and saint-relics, shrines, and miracle-cures were a source of boundless profit. On a subsequent page I shall have to describe the circumstances of the conflict that ensued between material philosophy on one side, and supernatural jugglery on the other; to show how the Arab system gained the victory, and how, out of that victory, the industrial life of Europe arose. The Byzantine policy inaugurated in Constantinople and Alexandria was, happily for the world, in the end overthrown. To that future page I must postpone the great achievements of the Arabians in the fullness of their Age of Reason. When Europe was hardly more enlightened than Caffraria is now, the Saracens were cultivating and even creating science. Their triumphs in philosophy, mathematics, astronomy, chemistry, medicine, proved to be more glorious, more durable, and therefore more important than their military actions had been.

CHAPTER XIV.

THE AGE OF FAITH IN THE WEST—(Continued).

IMAGE-WORSHIP AND THE MONKS.

Origin of IMAGE-WORSHIP.—Inutility of Images discovered in Asia and Africa during the Saracen Wars.—Rise of Iconoclasm.

The Emperors prohibit Image-worship.—The Monks, aided by court Females, sustain it.—Final Victory of the latter.

Image-worship in the West sustained by the Popes.—Quarrel between the Emperor and the Pope.—The Pope, aided by the Monks, revolts and allies himself with the Franks.

THE MONKS.—History of the Rise and Development of Monasticism.—Hermits and Cenobites.—Spread of Monasticism from Egypt over Europe.—Monk Miracles and Legends.—Humanization of the monastic Establishments.—They materialize Religion, and impress their Ideas on Europe.

THE Arabian influence, allying itself to philosophy, was henceforth productive of other than military results. To the loss of Africa and Asia was now added a disturbance impressed on Europe itself, ending in the decomposition of Christianity into two forms, Greek and Latin, and in three great political events—the emancipation of the popes from the emperors of Constantinople, the usurpation of power by a new dynasty in France, the reconstruction of a Roman empire in the West.

It was the dispute respecting the worship of images which led to those great events. The acts of the Mohammedan khalifs and of the iconoclastic or image-breaking emperors occasioned that dispute.

Nothing could be more deplorable than the condition of southern Europe when it first felt the intellectual influence of the Arabians. Its old Roman and Greek populations had altogether disappeared; the races of half-breeds and mongrels substituted for them were immersed in fetichism. An observance of certain ceremonies constituted a religious life; there seems to have been no perception of morality. A chip of the true cross, some iron filings from the chain of St. Peter, a tooth or bone of a martyr, were held in adoration; the world was full of the stupendous miracles which these medicines had performed. But especially were painted or graven images of holy personages supposed to be endowed with such powers. They had become objects of actual worship. The facility with which the Empress Helena, the mother of Constantine the Great, had given an aristocratic fashion to this idolatry, showed that the old pagan ideas had never really died out, and that the degenerated populations received with approval the religious conceptions of their great predecessors. The early Christian fathers believed that painting and sculpture were forbidden by the Scriptures, and that they were therefore wicked arts; and, though the second Council of Nicea asserted that the use of images had always been adopted by the Church, there are abundant facts to prove that the actual worship of them was not indulged in until the fourth century, when, on the occasion of its occurrence in Spain, it was condemned by the Council of Illiberis. During the fifth century the practice of introducing images into churches increased, and in the sixth it had become prevalent. The common people, who had never been able to comprehend doctrinal mysteries, found their religious wants satisfied in turning to these effigies. With singular obtuseness, they believed that the saint was present in his image, though hundreds of the same kind were in existence, and each having an equal and exclusive right to the spiritual presence. The doctrine of invocation of departed saints, which assumed prominence in the fifth century, was greatly strengthened by these graphic forms. Pagan idolatry had reappeared.

At first the simple cross was used as a substitute for the amulets and charms of remoter times; it constituted a fetich able to expel evil spirits, and even Satan himself. This being, who had become singularly debased from what he was in the noble Oriental fictions, was an imbecile and malicious, though not a malignant spirit, affrighted not only at pieces of wood framed in the shape of a cross, but at the form thereof made with the finger in the air. A subordinate dæmon was supposed to possess every individual at his birth, but this was cast out by baptism. When, in the course of time, the cross

Worship of relics
and images.

Its rapid spread
in Christendom.

Simple fetiches re-
placed by images.

became a crucifix, offering a representation of the dying Redeemer; it might be supposed to have gathered increased virtue; and soon, in addition to that adorable form, were introduced images of the Virgin, the apostles, saints, and martyrs. The ancient times seemed to have come back again, when these pictures were approached with genuflexions, luminaries, and incense. The doctrine of the more intelligent was that they were aids to devotion, and that, among people to whom the art of reading was unknown, they served the useful purpose of recalling sacred events in a kind of hieroglyphic manner. But among the vulgar, and monks, and women, they were believed to be endowed with supernatural power. Of some, the wounds could bleed; of others, the eyes could wink; of others, the limbs could be raised. In ancient times, the statues of Minerva could brandish spears, and those of Venus could weep.

Bleeding and winking images.

In truth, the populations of the Greek and Latin countries were no more than nominally converted and superficially Christianized. The old traditions and practices had never been forgotten. A tendency to idolatry seemed to be the necessary incident of the climate. Not without reason have the apologists of the clergy affirmed that image-worship was insisted upon by the people, and that the Church had to admit ideas that she had never been able to eradicate. After seven hundred years of apostolic labor, it was found that the populace of Greece and Italy were apparently in their old state, and that actually nothing at all had been accomplished; the new-comers had passed into the track of their extinct predecessors. It is often said that the restoration of image-worship was owing to the extinction of civilization by the Northern barbarians. But this is not true. In the blood of the German nations the taint of idolatry is but small. In their own countries they gave it little encouragement, and, indeed, hastened quickly to its total rejection. The sin lay not with them, but with the Mediterranean people.

Idolatry never extinguished in Greece and Italy.

Nor are those barbarians to be held accountable for the so-called extinction of civilization in Italy. The true Roman race had prematurely died; it came to an untimely end in consequence of its dissolute, its violent life. Its civilization would have spontaneously died with it had no barbarian been present; and, if these intruders produced a baneful effect at first, they compensated for it in the end. As, when fresh coal is added to a fire that is burning low, a still farther diminution will ensue, perhaps there may be a risk of entirely putting it out, but in due season, if all goes well, the new material will join in the contagious blaze. The savages of Europe, thrown into the decaying foci of Greek and Roman light, perhaps did for a time reduce the general heat; but, by degrees, it spread throughout their mass, and the bright flame of modern civilization was the result. Let those who

Influence of the barbarians.

lament the intrusion of these men into the classical countries, reflect upon the result which must otherwise have ensued—the last spark would soon have died out, and nothing but ashes have remained.

Three causes gave rise to Iconoclasm, or the revolt against image-worship: 1st, the remonstrances and derision of the Moham-
medans; 2d, the good sense of a great sovereign, Leo the Origin of Iconoclasm.
Isaurian, who had risen by his merit from obscurity, and become the founder of a new dynasty at Constantinople; 3d, the detected inability of these miracle-working idols and fetiches to protect their worshipers or themselves against an unbelieving enemy. Moreover, an impression was gradually making its way among the more intelligent classes that religion ought to free itself from such superstitions. So important were the consequences of Leo's actions, that some have been disposed to assign to his reign the first attempt at making policy depend on theology; and to this period, as I have elsewhere remarked, they therefore refer the commencement of the Byzantine empire. Through one hundred and twenty years, six emperors devoted themselves to this reformation. But it was premature. They were overpowered by the populace and the monks, by the bishops of Rome, and by a superstitious and wicked woman.

It had been a favorite argument against the pagans how little their gods could do for them when the hour of calamity came, when their statues and images were insulted and destroyed, and hence how vain was such worship, how imbecile such gods. When Africa Inutility of miraculous images discovered in the Arab invasions. and Asia, which were full of relics and crosses, pictures and images, fell before the Mohammedans, those conquerors retaliated the same logic with no little effect. There was hardly one of the fallen towns which had not some idol for its protector. Remembering the stern objurgations of the prophet against this deadly sin, prohibited at once by the commandment of God and repudiated by the reason of man, the Saracen khalifs had ordered all the Syrian images to be destroyed. Amid the derision of the Arab soldiery and the Destruction and sale of idols by the Arabs. tears of the terror-stricken worshipers, those orders were remorselessly carried into effect, except in some cases where the temptation of an enormous ransom induced these avengers of the unity of God to swerve from their duty. Thus the piece of linen cloth on which it was feigned that our Savior had impressed his countenance, and which was the palladium of Edessa, was carried off by the victors at the capture of that town, and subsequently sold to Constantinople at the profitable price of twelve thousand pounds of silver. This picture, and also some other celebrated ones, it was said, possessed the property of multiplying themselves by contact with other surfaces, as in modern times we multiply photographs. Such were the celebrated images "made without hands."

It was currently asserted that the immediate origin of Iconoclasm was due to the Khalif Yezed, who had completed the destruction of the Syrian images, and to two Jews, who stimulated Leo the Isaurian to his task. However that may be, Leo published an edict, A.D. 726, prohibiting the worship of images. This was followed by another directing their destruction, and the whitewashing of the walls of churches ornamented with them. Hereupon the clergy and the monks rebelled; the emperor was denounced as a Mohammedan and a Jew. He ordered that a statue of the Savior in that part of the city called Chalcoopratria should be removed, and a riot was the consequence. One of his officers mounted a ladder and struck the idol with an axe upon its face; it was an incident like that enacted some centuries before in the temple of Serapis at Alexandria. The sacred image, which had often arrested the course of Nature and worked many miracles, was now found to be unable to protect or to avenge its own honor. A rabble of women interfered in its behalf; they threw down the ladder and killed the officer; nor was the riot ended until the troops were called in and a great massacre perpetrated. The monks spread the sedition in all parts of the empire; they even attempted to proclaim a new emperor. Leo was every where denounced as a Mohammedan infidel, an enemy of the Mother of God; but with inflexible resolution he persisted in his determination as long as he lived.

His son and successor, Constantine, pursued the same iconoclastic policy. From the circumstance of his accidentally defiling the font from which he was being baptized, he had received the suggestive name of Copronymus. His subsequent career was asserted by the monks to have been foreshadowed by his sacrilegious beginnings. It was publicly asserted that he was an atheist. In truth, his biography, in many respects, proves that the higher classes in Constantinople were largely infected with infidelity. The patriarch deposed upon oath that Copronymus had made the most irreligious confessions to him, as that our Savior, far from being the Son of God, was, in his opinion, a mere man, born of his mother in the common way. The truth of these accusations was perhaps, in a measure, sustained by the revenge that the emperor took on the patriarch for his indiscreet revelations. He seized him, put out his eyes, caused him to be led through the city mounted on an ass, with his face to the tail, and then, as if to show his unutterable contempt for all religion, with an exquisite malice appointed him to his office again.

If such was the religious condition of the emperor, the higher clergy were but little better. A council was summoned by Constantine, A.D. 754, at Constantinople, which was attended by 388 bishops. It asserted for itself the position of the seventh general council. It unanimously decreed that all visible symbols of Christ

The emperor prohibits image-worship.

The monks sustain it.

They accuse the emperor of atheism.

Council of Constantinople prohibits image-worship.

except in the Eucharist, were blasphemous or heretical; that image-worship was a corruption of Christianity and a renewed form of paganism; it directed all statues and paintings to be removed from the churches and destroyed, and degraded every ecclesiastic and excommunicated every layman who should be concerned in setting them up again. It concluded its labors with prayers for the emperor who had extirpated idolatry and given peace to the Church.

But this decision was by no means quietly received. The monks rose in an uproar; some raised a clamor in their caves, some from the tops of their pillars; one, in the church of St. *Mammas*, insulted the emperor to his face, denouncing him as a second apostate Julian. Nor could he deliver himself from the plague by the scourging, strangling, and drowning of individuals. In his wrath, *Copronymus*, plainly discerning that it was the monks on one side and the government on the other, determined to strike at the root of the evil, and to destroy monasticism itself. He drove the holy men out of their cells and cloisters; made the consecrated virgins marry; gave up the buildings for civil uses; burnt pictures, idols, and all kinds of relics; degraded the patriarch from his office, scourged him, shaved off his eyebrows, set him for public derision in the circus in a sleeveless shirt, and then beheaded him. Already he had consecrated a eunuch in his stead. Doubtless these atrocities strengthened the bishops of Rome in their resolve to seek a protector from such a master among the barbarian kings of the West.

Uproar among the monks.

The emperor retaliates.

Constantine Copronymus was succeeded by his son, Leo the Chazar, who, during a short reign of five years, continued the iconoclastic policy. On his death his wife Irene seized the government, ostensibly in behalf of her son. This woman, pre-em-
Re-establishment of image-worship by Irene the murderess. inently wicked and superstitious beyond her times, undertook the restoration of images. She caused the patriarch to retire from his dignity, appointed one of her creatures, Tarasius, in his stead, and summoned another council. In this second Council of Nicea that of Constantinople was denounced as a synod of fools and atheists, the worship of images was pronounced agreeable to Scripture and reason, and in conformity to the usages and traditions of the Church.

Irene, saluted as the second Helena, and set forth by the monks as an exemplar of piety, thus accomplished the restoration of image-worship. In a few years this ambitious woman, refusing to surrender his rightful dignity to her son, caused him to be seized, and, in the porphyry chamber in which she had borne him, put out his eyes. Constantinople, long familiar with horrible crimes, was appalled at such an unnatural deed.

During the succeeding reigns to that of Leo the Armenian, matters remained without change; but that emperor resumed the policy of Leo the Isaurian. By an edict he prohibited

Resumption of iconoclasm by the succeeding emperors.

image-worship, and banished the Patriarch of Constantinople, who had admonished him that the apostles had made images of the Savior and the Virgin, and that there was at Rome a picture of the Transfiguration, painted by order of St. Peter. After the murder of Leo, his successor, Michael the Stammerer, showed no encouragement to either party. It was affirmed that he was given to profane jesting, was incredulous as to the resurrection of the dead, disbelieved the existence of the devil, was indifferent whether images were worshiped or not, and recommended the patriarch to bury the decrees of Constantinople and Nicea equally in oblivion. His successor and son, however, observed no such impartiality. To Saracenic tastes, shown by his building a palace like that of the khalif; to a devotion for poetry, exemplified by branding some of his own stanzas on his image-worshipping enemies; to the composition of music and its singing by himself as an amateur in the choir; to mechanical knowledge, displayed by hydraulic contrivances, musical instruments, organs, automatic singing-birds sitting in golden trees, he added an abomination of monks and a determined iconoclasm. Instead of merely whitewashing the walls of the churches, he adorned them with pictures of beasts and birds. Iconoclasm had now fairly become a struggle between the emperors and the monks.

Again, on the death of Theophilus, image-worship triumphed, and triumphed in the same manner as before. His widow, Theodora, alarmed by the monks for the safety of the soul of her husband, purchased absolution for him at the price of the restoration of images.

Such was the issue of Iconoclasm in the East. The monks proved stronger than the emperors, and, after a struggle of 120 years, the images were finally restored. In the West far more important consequences followed.

To image-worship Italy was devoutly attached. When the first edict of Leo was made known by the exarch, it produced a rebellion, of which Pope Gregory II. took advantage to suspend the tribute paid by Italy. In letters that he wrote to the emperor he defended the popular delusion, declaring that the first Christians had caused pictures to be made of our Lord, of his brother James, of Stephen, and all the martyrs, and had sent them throughout the world; the reason that God the Father had not been painted was that his countenance was not known. These letters display a most audacious presumption of the ignorance of the emperor respecting common Scripture incidents, and, as some have remarked, suggest a doubt of the pope's familiarity with the sacred volume. He points out the difference between the statues of antiquity, which are only the representations of phantoms, and the images of the Church, which have approved

Their Saracenic tastes.

Final restoration of image-worship by the Empress Theodora.

Image-worship in the West.

It is sustained by the pope.

themselves, by numberless miracles, to be the genuine forms of the Saviour, his mother, and his saints. Referring to the statue of St. Peter, which the emperor had ordered to be broken to pieces, he declares that the Western nations regard that apostle as a god upon earth, and ominously threatens the vengeance of the pious barbarians if it should be destroyed. In this defense of images Gregory found an active coadjutor in a Syrian, John of Damascus, who had witnessed the rage of the khalifs against the images of his own country, and whose hand, having been cut off by those tyrants, was miraculously rejoined to his body by an idol of the Virgin to which he prayed.

But Gregory was not alone in his policy, nor John of Damascus in his controversies. The King of the Lombards, Luitprand, ^{and by the Lombard king.} also perceived the advantage of putting himself forth as the protector of images, and of appealing to the Italians, for their sake, to expel the Greeks from the country. The pope acted on the principle that heresy in a sovereign justifies withdrawal of allegiance, the Lombard that it excuses the seizure of possessions. Luitprand accordingly ventured on the capture of Ravenna. An immense booty, the accumulation of the emperors, the Gothic kings, and the exarchs, which was taken at the storm of the town, at once rewarded his piety, stimulated him to new enterprises of a like nature, and drew upon him the attention of his enemy the emperor, whom he had plundered, and of his confederate the pope, whom he had overreached.

This was the position of affairs. If the Lombards, who were Arians, and therefore heretics, should succeed in extending their sway all over Italy, the influence and prosperity of the papacy must come ^{Position of affairs at this time.} to an end; their action on the question of the images was altogether of an ephemeral and delusive kind, for all the Arian nations preferred a simple worship like that of primitive times, and had never shown any attachment to the adoration of graven forms. If, on the other hand, the pope should continue his allegiance to Constantinople, he must be liable to the atrocious persecutions so often and so recently inflicted on the patriarchs of that city by their tyrannical master; and the breaking of that connection in reality involved no surrender of any solid advantages, for the emperor was too weak to give protection from the Lombards. Already had been experienced a portentous difficulty in sending relief from Constantinople, on account of the naval ^{The Saracens dominate in the Mediterranean.} superiority of the Saracens in the Mediterranean. For the taxes paid to the sovereign no real equivalent was received; but Rome, in ignominy, was obliged to submit, like an obscure provincial town, to the mandates of the Eastern court. Moreover, in her eyes, the emperor, by reason of his iconoclasm, was a heretic. But if alliance with the Lombards and allegiance to the Greeks were equally inexpedient, a third course was possible. A mayor of the palace of the Frankish kings

Causes of the alliance of the popes and the Franks. had successfully led his armies against the Arabs from Spain, and had gained the great victory of Tours. If the Franks, under the influence of their climate or the genius of their race, had thus far shown no encouragement to images, in all other respects they were orthodox, for they had been converted by Catholic missionaries; their kings, it was true, were mere phantoms, but Charles Martel had approved himself a great soldier; he was, therefore, an ambitious man. There was Scripture authority for raising a subordinate to sovereign power; the prophets of Israel had thus, of old, with oil anointed kings. And if the sword of France was gently removed from the kingly hand that was too weak to hold it, and given to the hero who had already shown that he could smite terribly with it—if this were done by the authority of the pope, acting as the representative of God, how great the gain to the papacy! A thousand years might not be enough to separate the monarchy of France from the theocracy of Italy.

The resistance which had sprung up to the imperial edict for the destruction of images determined the course of events. The pope rebelled, and attempts were made by the emperor to seize or assassinate him. Revolt of the pope from the emperor. A fear that the pontiff might be carried to Constantinople, and the preparations making to destroy the images in the churches, united all Italy. A council was held at Rome, which anathematized the Iconoclasts. In retaliation, the Sicilian and other estates of the Church were confiscated. Gregory III., who in the mean time succeeded to the papacy, continued the policy of his predecessor. The emperor was defied. A fleet, which he fitted out in support of the exarch, was lost in a storm. With this termination of the influence of Constantinople in Italy came the imminent danger that the pope must acknowledge the supremacy of the Lombards. In his distress Gregory turned to Alliance of the pope and the Franks. Charles Martel. He sent him the keys of the sepulchre of St. Peter, and implored his assistance. The die was cast. Papal Rome revolted from her sovereign, and became indissolubly bound to the barbarian kingdoms. To France a new dynasty was given, to the pope temporal power, and to the west of Europe a fictitious Roman empire.

The monks had thus overcome the image-breaking emperors, a result The monks. which proves them to have already become a formidable power in the state. It is necessary, for a proper understanding of the great events with which henceforth they were connected, to describe their origin and history.

In the iconoclastic quarrel they are to be regarded as the representatives of the common people in contradistinction to the clergy; often, indeed, the representatives of the populace, infected with all its instincts of superstition and fanaticism. They are the upholders of miracles

cures, invocation of saints, worship of images, clamorous assertions of a unity of faith in the Church—a unity which they never practiced, but which offered a convenient pretext for a bitter persecution of heresy and paganism, though they were more than half pagan themselves.

It was their destiny to impress on the practical life of Europe that mixture of Christianity and heathenism engendered by political events in Italy and Greece. Yet, while they thus co-operated in great affairs, they themselves exhibited, in the most signal manner, the force of that law of continuous variation of opinion and habits to which all enduring communities of men must submit. Born of superstition, obscene in their early life, they end in luxury, refinement, learning. Theirs is a history to which we may profitably attend.

From very early times there had been in India zealots who, actuated by a desire of removing themselves from the temptations of society and preparing for another life, retired into solitary places. Such also were the Essenes among the Jews, and the Therapeutæ in Egypt. Pliny speaks of the blameless life of the former when he says, "They are the companions of palms;" nor does he hide his astonishment at an immortal society in which no one is ever born. Their example was not lost upon more devout Christians, particularly after the influence of Magianism began to be felt. Though it is sometimes said that the first of these hermits were Anthony and Paulus, they doubtless are to be regarded as only having rendered themselves more illustrious by their superior sanctity among a crowd of worthies who had preceded them or were their contemporaries. As early as the second and third centuries the practice of retirement had commenced among Christians; soon after it had become common. The date of Hilarion is about A.D. 328, of Basil A.D. 360. Regarding prayer as the only occupation in which man may profitably engage, they gave no more attention to the body than the wants of nature absolutely demanded. A little dried fruit or bread for food, and water for drink, was sufficient for its support; occasionally a particle of salt might be added, but the use of warm water was looked upon as betraying a tendency to luxury. The incentives to many of their rules of life might excite a smile, if it were right to smile at the acts of earnest men. Some, like the innocent Essenes, who would do nothing whatever on the Sabbath, observed the day before as a fast, rigorously abstaining from food and drink, that nature might not force them into sin on the morrow. For some, it was not enough, by the passive means of abstinence, to refrain from fault or reduce the body to subjection, though starvation is the antidote for desire; the more active, and, perhaps, more effectual operation of periodical flagellations and bodily torture were added. Ingenuity was taxed to find new means of personal infliction. A hermit who

Their first position

and subsequent improvement.

The first hermits.

Their self-denial.

never permitted himself to sleep more than an hour without being awakened endured torments not inferior to those of the modern fakir, who crosses his arms on the top of his head, and keeps them there for years, until they are wasted to the bone, or suspends himself to a pole by means of a hook inserted in the flesh of his back.

Among the Oriental sects there are some who believe that the Supreme Being is perpetually occupied with the contemplation of himself, and that the nearer man can approach to a state of total inaction the more will he resemble God. For successive years the Indian sage never raises his eyes from his navel; absorbed in the profound contemplation of it, his perennial reverie is unbroken by any outward suggestions, the admiring by-standers administering, as chance offers, the little food and water that his wants require. Under the influ-

Profound contemplation of God.
Aerial martyrs.
Holy birds.

ence of similar ideas, in the fifth century, St. Simeon Stylites, who in his youth had often been saved from suicide, by ascending a column he had built, sixty feet in height, and only one foot square at the top, departed as far as he could from earthly affairs, and approached more closely to heaven. Upon this elevated retreat, to which he was fastened by a chain, he endured, if we may believe the incredible story, for thirty years the summer's sun and the winter's frost. From afar the passer-by was edified by seeing the motionless figure of the holy man, with outstretched arms like a cross, projected against the sky, in his favorite attitude of prayer, or expressing his thankfulness for the many mercies of which he supposed himself to be the recipient by rapidly striking his forehead against his knees. Historians relate that a curious spectator counted twelve hundred and forty-four of these motions, and then abstained through fatigue from any farther tally, though the unwearied exhibition was still going on. This "most holy aerial martyr," as Evagrius calls him, attained at last his reward, and Mount Telenissa witnessed a vast procession of devout admirers accompanying to the grave his mortal remains.

More commonly, however, the hermit declined the conspicuous notoriety of these "holy birds," as they were called by the profane, and, retiring to some cave in the desert, despised the comforts of life, and gave himself up to penance and prayer. Among men who had thus altogether exalted themselves above the wants of the flesh, there was no toleration for its lusts. The sinfulness of the marriage relation, and the pre-eminent value of chastity, followed from their principles. If it was objected to such practices that by their universal adoption the human species would soon be extinguished, and no man would remain to offer praises to God, these zealots, remembering the temptations from which they had escaped, with truth replied that there would always be sinners enough in the world to avoid that disaster, and that out of their evil works good would be brought. St. Jerome

The monks insist on celibacy.

offers us the pregnant reflection that, though it may be marriage that fills the earth, it is virginity that replenishes heaven.

If they were not recorded by many truthful authors, the extravagancies of some of these enthusiasts would pass belief. Men and women ran naked upon all fours, associating themselves with the beasts of the field. In the spring season, when the grass is tender, the grazing hermits of Mesopotamia went forth to the plains, sharing ^{Grazing hermits.} with the cattle their filth and their food. Of some, notwithstanding a weight of evidence, the stupendous biography must tax their admirers' credulity. It is affirmed that St. Ammon had never seen his own body uncovered; that an angel carried him on his back over a river which he was obliged to cross; that at his death he ascended to heaven through the skies, St. Anthony being an eye-witness of the event—St. Anthony, who was guided to the hermit Paulus by a centaur; that Didymus never spoke to a human being for ninety years.

From the Jewish anchorites, who of old sought a retreat beneath the shade of the palms of Engaddi, who beguiled their weary hours in the chanting of psalms by the bitter waters of the Dead Sea; from the philosophic Hindu, who sought for happiness in bodily inaction and mental exercise, to these Christian solitaries, the stages of delusion are ^{Insane hermits.} numerous and successive. It would not be difficult to present examples of each step in the career of debasement. To one who is acquainted with the working and accidents of the human brain, it will excite no surprise that an asylum for those hermits who had become hopelessly insane was instituted at Jerusalem.

The biographies of these recluses, for ages a source of consolation to the faithful in their temptations, are not to be regarded as mere works of fiction, though they abound in supernatural occurrences, and are the forerunners of the dæmonology of the Middle Ages. The whole world was a scene of dæmoniac adventures, of miracles and wonders. So far from being mere impostures, they relate nothing more than may be witnessed at any time under similar conditions. In the brain of ^{Causes of hallucinations.} man, impressions of whatever he has seen or heard, of whatever has been made manifest to him by his other senses, nay, even the vestiges of his former thoughts, are stored up. These traces are most vivid at first, but, by degrees, they decline in force, though they probably never completely die out. During our waking hours, while we are perpetually receiving new impressions from things that surround us, such vestiges are overpowered, and can not attract the attention of the mind. But in the period of sleep, when external influences cease, they present themselves to our regard, and the mind, submitting to the delusion, groups them into the fantastic forms of dreams. By the use of opium and other drugs which can blunt our sensibility to passing events, these phantasms may be made to emerge. They also offer themselves in the delirium of fevers and in the hour of death.

It is immaterial in what manner or by what agency our susceptibility to the impressions of surrounding objects is benumbed, whether by drugs, or sleep, or disease, as soon as their force is no greater than that of forms already registered in the brain, these last will emerge before us, and dreams or apparitions are the result. So liable is the mind to practice deception on itself, that with the utmost difficulty it is aware of the delusion. No man can submit to long-continued and rigorous fasting without becoming the subject of these hallucinations; and the more he enfeebles his organs of sense, the more vivid is the exhibition, the more profound the deception. An ominous sentence may perhaps be incessantly whispered in his ear; to his fixed and fascinated eye some grotesque or abominable object may perpetually present itself. To the hermit, in the solitude of his cell, there doubtless often did appear, by the uncertain light of his lamp, obscene shadows of diabolical import; doubtless there was many an agony with fiends, many a struggle with monsters, satyrs, and imps, many an earnest, solemn, and manful controversy with Satan himself, who sometimes came as an aged man, sometimes with a countenance of horrible intelligence, and sometimes as a female fearfully beautiful. St. Jerome, who, with the utmost difficulty, had succeeded in extinguishing all carnal desires, ingenuously confesses how sorely he was tried by this last device of the enemy, how nearly the ancient flames were rekindled. As to the reality of these apparitions, why should a hermit be led to suspect that they arose from the natural working of his own brain? Men never dream that they are dreaming. To him they were terrible realities; to us they should be the proofs of insanity, but not of imposture.

If, in the prison discipline of modern times, it has been found that solitary confinement is a punishment too dreadful for the most hardened convict to bear, and that, if persisted in, it is liable to end in insanity, how much more quickly must that unfortunate condition have been induced when the trials of religious distress and the physical enfeeblement arising from rigorous fastings and incessant watchings were added. To the dreadful ennui which precedes that state, one of the ancient monks pathetically alludes when he relates how often he went forth and returned to his cell, and gazed on the sun as if he hastened too slowly to his setting. And yet such fearful solitude is but of brief duration. Even though we fly to the desert we can not be long alone. Cut off from social converse, the mind of man engenders companions for itself—companions like the gloom from which they have emerged. It was thus that to St. Anthony appeared the Spirit of Fornication, under the form of a lascivious negro boy; it was thus that multitudes of demons of horrible aspect cruelly beat him nearly to death, the brave old man defying them to the last, and telling them that he did not wish to be spared one of their blows; it was thus that in the night,

Delusions created by the mind.

with hideous laughter, they burst into his cell, under the form of lions, serpents, scorpions, asps, lizards, panthers, and wolves, each attacking him in its own way; thus that when, in his dire extremity, he lifted his eyes for help, the roof disappeared, and amid beams of light the Savior looked down; thus it was with the enchanted silver dish that Satan gave him, which, being touched, vanished in smoke; thus with the gigantic bats and centaurs, and the two lions that helped him to scratch a grave for Paul.

The images that may thus emerge from the brain have been classed by physiologists among the phenomena of inverse vision, or cerebral sight. Elsewhere I have given a detailed investigation of their nature (Human Physiology, p. 401), and, persuaded that they have played a far more important part in human thought than is commonly supposed, have thus expressed myself: "Men in every part of the world, even among nations the most abject and barbarous, have an abiding faith not only in the existence of a spirit that animates us, but also in its immortality. Of these there are multitudes who have been shut out from all communion with civilized countries, who have never been enlightened by revelation, and who are mentally incapable of reasoning out for themselves arguments in support of those great truths. Under such circumstances, it is not very likely that the uncertainties of tradition, derived from remote ages, could be any guide to them, for traditions soon disappear except they be connected with the wants of daily life. Can there be, in a philosophical view, any thing more interesting than the manner in which these defects have been provided for by implanting in the very organization of every man the means of constantly admonishing him of these facts—of recalling them with an unexpected vividness before him even after they have become so faint as almost to die out? Let him be as debased and benighted a savage as he may, shut out from all communion with races whom Providence has placed in happier circumstances, he has still the same organization, and is liable to the same physiological incidents as ourselves. Like us, he sees in his visions the fading forms of landscapes which are perhaps connected with some of his most grateful recollections, and what other conclusion can he possibly derive from these unreal pictures than that they are the foreshadowings of another land beyond that in which his lot is cast. Like us, he is revisited at intervals by the resemblances of those whom he has loved or hated while they were alive, nor can he ever be so brutalized as not to discern in such manifestations suggestions which to him are incontrovertible proofs of the existence and immortality of the soul. Even in the most refined social conditions we are never able to shake off the impressions of these occurrences, and are perpetually drawing from them the same conclusions as did our uncivilized ancestors. Our more elevated condition of life in no

Important religious results of cerebral sight.

A future world.

Immortality of the soul.

respect relieves us from the inevitable consequences of our own organization any more than it relieves us from infirmities and disease. In these respects, all over the globe we are on an equality. Savage or civilized, we carry within us a mechanism intended to present to us mementoes of the most solemn facts with which we can be concerned, and the voice of history tells us that it has ever been true to its design. It wants only moments of repose or sickness, when the influence of external things is diminished, to come into full play, and these are precisely the moments when we are best prepared for the truths it is going to suggest. Such a mechanism is in keeping with the manner in which the course of nature is fulfilled, and bears in its very style the impress of invariability of action. It is no respecter of persons. It neither permits the haughtiest to be free from its monitions, nor leaves the humblest without the consolation of a knowledge of another life. Liable to no mischances, open to no opportunities of being tampered with by the designing or interested, requiring no extraneous human agency for its effect, but always present with each man wherever he may go, it marvelously extracts from vestiges of the impressions of the past overwhelming proofs of the reality of the future, and gathering its power from what would seem to be a most unlikely source, it insensibly leads us, no matter who or where we may be, to a profound belief in the immortal and imperishable, from phantoms that have scarcely made their appearance before they are ready to vanish away."

From such beginnings the monastic system of Europe arose—that system which presents us with learning in the place of ferocious ignorance, with overflowing charity to mankind in the place of malignant hatred of society. The portly abbot on his easy-going palfrey, his hawk upon his fist, scarce looks like the lineal descendant of the hermit starved into insanity. How wide the interval between the monk of the third and the monk of the thirteenth century—between the caverns of Thebais and majestic monasteries hiding the relics of ancient learning, the hopes of modern philosophy—between the butler arranging his well-stocked larder, and the jug of cold water and crust of bread. A thousand years had turned starvation into luxury, and alas! if the spoilers of the Reformation are to be believed, had converted visions of loveliness into breathing and blushing realities, who exercised their charms with better effect than of old their phantom sisters had done.

The successive stages to this end may be briefly described. Around the cell of some eremite like Anthony, who fixed his retreat on Mount Colzim, a number of humble imitators gathered, emulous of his austerities and of his piety. A similar sentiment impels them to observe stated hours of prayer. Necessity for supporting the body indicates some pursuit of idle industry, the plaiting of mats or

Amelioration of
monasticism.

Its final cor-
ruptions.

The modifications
of eremitism.

making of baskets. So strong is the instinctive tendency of man to association, that even communities of madmen may organize. Hilarion is said to have been the first who established a monastic community. Perhaps it may have been so. He went into the desert when he was only fifteen years old. Eremitism thus gave birth to Cœnobitism, and the evils of solitude were removed. Yet still there remained rigorous anchorites who renounced their associated brethren as they had renounced the world, and the monastery was surrounded by their circle of solitary cells—a Laura, it was called. In Egypt, the sandy deserts on each side of the rich valley of the river offered great facilities for such a mode of life: that of Nitria was full of monks, the climate being mild, and the wants of man satisfied with ease. It is said that there ^{Number of anchorites,} were at one time in that country of these religious recluses not less than seventy-six thousand males and twenty-seven thousand females. With countless other uncouth forms, under the hot sun of that climate they seemed to be spawned from the mud of the Nile. As soon as from some celebrated hermitage a monastery had formed, the associates submitted to the rules of brotherhood. Their meal, eaten in silence, consisted of bread and water, oil, and a little salt. The bundle of papyrus which had served the monk for a seat by day, while he made his baskets or mats, served him for a pillow by night. Twice he was roused from his sleep by the sound of a horn to offer up his prayers. The culture of superstition was compelled by inexorable rules. A discipline of penalties, confinement, fasting, whipping, and, at a later period, even mutilation, was inflexibly administered.

From Egypt and Syria monachism spread like an epidemic. It was first introduced into Italy by Athanasius, assisted by some of ^{Spread of monasticism from Egypt.} the disciples of Anthony; but Jerome, whose abode was in Palestine, is celebrated for the multitude of converts he made to a life of retirement. Under his persuasion, many of the high-born ladies of Rome were led to the practice of monastic habits, as far as was possible, in secluded spots near that city, on the ruins of temples, and even in the Forum. Some were induced to retreat to the Holy Land, after bestowing their wealth for pious purposes. The silent monk insinuated himself into the privacy of families for the purpose of making proselytes by stealth. Soon there was not an unfrequented island in the Mediterranean, no desert shore, no gloomy valley, no forest, no glen, no volcanic crater, that did not witness exorbitant selfishness made the rule of life. There were multitudes of hermits on the desolate coasts of the Black Sea. They abounded from the freezing Tanais to the sultry Tabenné. In rigorous personal life and in supernatural power the West acknowledged no inferiority to the East; his admiring imitators challenged even the desert of Thebais to produce the equal of Martin of Tours. The solitary anchorite was soon supplanted by the cœnobitic establishment,

the monastery. It became a fashion among the rich to give all that they had to these institutions for the salvation of their own souls. There was now no need of basket-making or the weaving of mats. The brotherhood increased rapidly. Whoever wanted to escape from the barbarian invaders, or to avoid the hardships of serving in the imperial army—whoever had become discontented with his worldly affairs, or saw in those dark times no inducements in a home and family of his own, found in the monastery a sure retreat. The number of these religious houses eventually became very great. They were usually placed on the most charming and advantageous sites, their solidity and splendor illustrating the necessity of erecting durable habitations for societies that were immortal. It often fell out that the Church laid claim to the services of some distinguished monk. It was significantly observed that the road to ecclesiastical elevation lay through the monastery porch, and often ambition contentedly wore for a season the cowl, that it might seize more surely the mitre.

Though the monastic system of the East included labor, it was greatly inferior to that of the West in that particular. The Oriental monk, at first making selfishness his rule of life, and his own salvation the grand object, though all the world else should perish, in his maturer period occupied his intellectual powers in refined disputations of theology. Too often he exhibited his physical strength in the furious riots he occasioned in the streets of the great cities. He was a fanatic and insubordinate. On the other hand, the Occidental monk showed far less disposition for engaging in the discussion of things above reason, and expended his strength in useful and honorable labor. Beneath his hand the wilderness became a garden. To a considerable extent this difference was due to physiological peculiarity, and yet it must not be concealed that the circumstances of life in the cases were not without their effects. The old countries of the East, with their worn-out civilization and worn-out soil, offered no inducements comparable with the barbarous but young and fertile West, where to the ecclesiastic the most lovely and inviting lands were open. Both, however, coincided in this, that they regarded the affairs of life as presenting perpetual interpositions of a providential or rather supernatural kind—angels and devils being in continual conflict for the soul of every man, who might become the happy prize of the one or the miserable prey of the other. These spiritual powers were perpetually controlling the course of nature and giving rise to prodigies. The measure of holiness in a saint was the number of miracles he had worked. Thus, in the life of St. Benedict, it is related that when his nurse Cyrilla let fall a stone sieve, her distress was changed into rejoicing by the prayer of the holy child, at which the broken parts came together and were made whole; that once, on receiving his food in a basket, let down to his oth-

Increase of
the religious
houses.

Difference of
the Eastern
and Western
monk.

Legends of West-
ern saints.

erwise inaccessible cell, the devil vainly tried to vex him by breaking the rope; that once Satan, assuming the form of a blackbird, nearly blinded him by flapping his wings; that once, too, the same tempter appeared as a beautiful Roman girl, to whose fascinations, in his youth, St. Benedict had been sensible, and from which he now hardly escaped by rolling himself among thorns. Once, when his austere rules and severity excited the resentment of the monastery over which he was abbot, the brethren—for monks have been known to do such things—attempted to poison him, but the cup burst asunder as soon as he took it into his hands. When the priest Florentius, being wickedly disposed, attempted to perpetrate a like crime by means of an adulterated loaf, a raven carried away the deadly bread from the hand of St. Benedict. Instructed by the devil, the same ecclesiastic drove from his neighborhood the holy man, by turning into the garden of his monastery seven naked girls; but scarcely had the saint taken to flight, when the chamber in which his persecutor lived fell in and buried him beneath its ruins, though the rest of the house was uninjured. Under the guidance of two visible angels, who walked before him, St. Benedict continued his journey to Monte Casino, where he erected a noble monastery; but even here miracles did not cease; for Satan bewitched the stones, so that it was impossible for the masons to move them until they were released by powerful prayers. A boy, who had stolen from the monastery to visit his parents, was not only struck dead by God for his fault, but the consecrated ground threw forth his body when they attempted to bury it, nor could it be made to rest until the consecrated bread was laid upon it. Two garrulous nuns, who had been excommunicated by St. Benedict for their perverse prating, chanced to be buried in the church. On the next administration of the sacrament, when the deacon commanded all those who did not communicate to depart, the corpses rose out of their graves and walked forth from the church.

Volumes might be filled with such wonders, which edified the religious for centuries, exacting implicit belief, and being regarded as of equal authority with the miracles of the Holy Scriptures.

The character of these miracles.

Though monastic life rested upon the principle of social abnegation, monasticism, in singular contradiction thereto, contained within itself the principle of organization. As early as A.D. 370, St. Basil, the Bishop of Cæsarea, incorporated the hermits and cœnobites of his diocese into one order, called after him the Basilian. One hundred and fifty years later, St. Benedict, under a milder rule, organized those who have passed under his name, and found for them occupation in suitable employments of manual and intellectual labor. In the ninth century, another Benedict revised the rule of the order, and made it more austere. Offshoots soon arose, as those of Clugni, A.D. 900; the Carthusians, A.D. 1084; the Cistercians, A.D. 1098. A favorite pursuit among

Rise and progress of monastic orders.

them being literary labor, they introduced great improvements in the copying of manuscripts; and in their illumination and illustration are found the germs of the restoration of painting and the invention of cur-sive handwriting. St. Benedict enjoined his order to collect books. It has been happily observed that he forgot to say any thing about their nature, supposing that they must all be religious. The Augustinians were founded in the eleventh century. They professed, however, to be a restoration of the society founded ages before by St. Augustine.

The influence to which monasticism attained may be judged of from the boast of the Benedictines that "Pope John XXII, who died in 1334, after an exact inquiry, found that, since the first rise of the order, there had been of it 24 popes, near 200 cardinals, 7000 archbishops, 15,000 bishops, 15,000 abbots of renown, above 4000 saints, and upward of 37,000 monasteries. There have been likewise, of this order, 20 emperors and 10 empresses, 47 kings and above 50 queens, 20 sons of emperors, and 48 sons of kings; about 100 princesses, daughters of kings and emperors; besides dukes, marquises, earls, countesses, etc., innumerable. The order has produced a vast number of authors and other learned men. Their Rabanus set up the school of Germany. Their Alcuin founded the University of Paris. Their Dionysius Exiguus perfected ecclesiastical computation. Their Guido invented the scale of music; their Sylvester, the organ. They boast to have produced Anselm, Ildefonsus, and the Venerable Bede."

We too often date the Christianization of a community from the conversion of its sovereign, but it is not in the nature of things that that should change the hearts of men. Of what avail is it if a barbarian chieftain drives a horde of his savages through the waters of a river by way of extemporaneous or speedy baptism? Such outward forms are of little moment. It was mainly by the monasteries that the peasant class of Europe were pointed the way to civilization. The devotions and charities; the austerities of the brethren; their abstemious meal; their meagre clothing, the cheapest of the country in which they lived; their shaven heads, or the cowl which shut out the sight of sinful objects; the long staff in their hands; their naked feet and legs; their passing forth on their journeys by twos, each a watch upon his brother; the prohibitions against eating outside of the wall of the monastery, which had its own mill, its own bake-house, and whatever was needed in an abstemious domestic economy; their silent hospitality to the wayfarer, who was refreshed in a separate apartment; the lands around their buildings turned from a wilderness into a garden, and, above all, labor exalted and ennobled by their holy hands, and celibacy, forever, in the eye of the vulgar, a proof of separation from the world and a sacrifice to heaven—these were the things that arrested the attention of the barbarians of Europe, and led them on to civilization.

In our own material age, the advocates of the monastery have plaintively asked, Where now shall we find an asylum for the sinner who is sick of the world—for the man of contemplation in his old age, or for the statesman who is tired of affairs? It was through the leisure procured by their wealth that the monasteries produced so many cultivators of letters, and transmitted to us the literary relics of the old times. It was a fortunate day when the monk turned from the weaving of mats to the copying of manuscripts—a fortunate day Their later intellectual influence. when he began to compose those noble hymns and strains of music which will live forever. From the "Dies Iræ" there rings forth grand poetry even in monkish Latin. The perpetual movements of the monastic orders gave life to the Church. The Protestant admits that to a resolute monk the Reformation was due.

With these pre-eminent merits, the monastic institution had its evils. Through it was spread that dreadful materialization of religion which, for so many ages, debased sacred things; through Their materialization of religion. it that worse than pagan apotheosis, which led to the adoration—for such it really was—of dead men; through it were sustained relics and lying miracles, the belief in falsehoods so prodigious as to disgrace the common sense of man. The apostles and martyrs of old were forgotten; nay, even the worship of God was forsaken for shrines that could cure all diseases, and relics that could raise the dead. Through it was developed that intense selfishness which hesitated at no sacrifice either of the present or the future, so far as this life is concerned, in order to insure personal happiness in the next—a selfishness which, in the delusion of the times, passed under the name of piety; and the degree of abasement from the dignity of a man was made the measure of the merit of a monk.

CHAPTER XV.

THE AGE OF FAITH IN THE WEST. THE THREE ATTACKS: NORTHERN OR MORAL; WESTERN OR INTELLECTUAL; EASTERN OR MILITARY.

THE NORTHERN OR MORAL ATTACK ON THE ITALIAN SYSTEM, AND ITS TEMPORARY REPELSE.

Geographical Boundaries of Italian Christianity.—Attacks upon it.

The Northern or moral Attack.—The Emperor of Germany insists on a reformation in the Papacy.—Gerbert, the representative of these Ideas, is made Pope.—They are both poisoned by the Italians.

Commencement of the intellectual Rejection of the Italian System.—Originates in the Arabian doctrine of the supremacy of Reason over Authority.—The question of Transubstantiation.—Rise and development of Scholasticism.—Mutiny among the Monks.

Gregory VII. spontaneously accepts and enforces a Reform in the Church.—Overcomes the Emperor of Germany.—Is on the point of establishing a European Theocracy.—The Popes seize the military and monetary Resources of Europe through the Crusades.

THE realm of an idea may often be defined by geometrical lines.

If from Rome, as a centre, two lines be drawn, one of which passes eastward, and touches the Asiatic shore of the Bosphorus, the other westward, and crosses the Pyrenees, nearly all those Mediterranean countries lying to the south of these lines were living, at the time of which we speak, under the dogma, "There is but one God, and Mohammed is his prophet;" but the countries to the north had added to the orthodox conception of the Holy Trinity the adoration of the Virgin, the worship of images, the invocation of saints, and a devout attachment to relics and shrines.

I have now to relate how these lines were pushed forward on Europe, that to the east by military, that to the west by intellectual force. On Rome, as on a pivot, they worked; now opening, now closing, now threatening to curve round at their extremes and compress paganizing Christendom in their clasp; then, through the convulsive throes of the nations they had inclosed, receding from one another and quivering throughout their whole length, but receding only for an instant, to shut more closely again.

It was as if from the hot sands of Africa invisible arms were put forth, enfolding Europe in their grasp, and struggling to join their hands to give to paganizing Christendom a fearful and mortal compression. There were struggles and resistances, but the portentous hands clasped at last. Historically, we call the pressure that was then made the Reformation.

Not without difficulty can we describe the convulsive struggles of na-

The geographical boundaries of Latin Christianity.

Forces acting upon it.

tions so as to convey a clear idea of the forces acting upon them. I have now to devote many perhaps not uninteresting, certainly not uninteresting pages to these events.

In this chapter I begin that task by relating the consequences of the state of things heretofore described—the earnestness of converted Germany and the immoralities of the popes.

The Germans insisted on a reformation among ecclesiastics, and that they should lead lives in accordance with religion. This moral attack was accompanied also by an intellectual one, arising from another source, and amounting to a mutiny in the Church itself. In the course of centuries, and particularly during the more recent evil times, a gradual divergence of theology from morals had taken place, to the dissatisfaction of that remnant of thinking men who here and there, in the solitude of monasteries, compared the dogmas of theology with the dictates of reason. Of those, and the number was yearly increasing, who had been among the Arabs in Spain, not a few had become infected with a love of philosophy.

Whoever compares the tenth and twelfth centuries together can not fail to remark the great intellectual advance which Europe was making. The ideas occupying the minds of Christian men, their very turn of thought, had altogether changed. The earnestness of the Germans, commingling with the knowledge of the Mohammedans, could no longer be diverted from the misty clouds of theological discussion out of which Philosophy emerged, not in the Grecian classical vesture in which she had disappeared at Alexandria, but in the grotesque garb of the cowed and mortified monk. She timidly came back to the world as Scholasticism, persuading men to consider, by the light of their own reason, that dogma which seemed to put common sense at defiance—transubstantiation. Scarcely were her whispers heard in the ecclesiastical ranks when a mutiny against authority arose, and since it was necessary to combat that mutiny with its own weapons, the Church was compelled to give her countenance to Scholastic Theology.

Lending himself to the demand for morality, and not altogether refusing to join in the intellectual progress, a great man, Hildebrand, brought on an ecclesiastical reform. He raised the papacy to its maximum of power, and prepared the way for his successors to seize the material resources of Europe through the Crusades.

Such is an outline of the events with which we have now to deal. A detailed analysis of those events shows that there were three directions of pressure upon Rome. The pressure from the West and that from the East were Mohammedan. Their resultant was a pressure from the North: it was essentially Christian. While they were foreign, this was domestic. It is almost immaterial in what order we consider them; the manner in which I am handling the subject leads

me, however, to treat of the Northern pressure first, then of that of the West, and on subsequent pages of that of the East.

It had become absolutely necessary that something should be done for the reformation of the papacy. Its crimes, such as we have related in Chapter XII., outraged religious men. To the master-spirit of the movement for accomplishing this end we must closely look. He is the representative of influences that were presently to exert a most important agency. In the train of the Emperor Otho III., when he resolved to put a stop to all this wickedness, was Gerbert, a French ecclesiastic, born in Auvergne. In his boyhood, while a scholar

Life of Gerbert, in the Abbey of Avrillac, he attracted the attention of his superiors; among others, of the Count of Barcelona, who took him into Spain. There he became a proficient in the mathematics, astronomy, and physics of the Mohammedan schools. He spoke Arabic with the fluency of a Saracen. His residence at Cordova, where the khalif patronized all the learning and science of the age, and his subsequent residence in Rome, where he found an inconceivable ignorance and immorality, were not lost upon his future life. He established a school at Rheims, where he taught logic, music, astronomy, explained Virgil, Statius, Terence, and introduced what were at that time regarded as wonders, the globe and the abacus. He labored to persuade his countrymen that learning is far to be preferred to the sports of the field. He observed the stars through tubes, invented a clock, and an organ played by steam. He composed a work on Rhetoric. Appointed Abbot of Bobbio, he fell into a misunderstanding with his monks, and had to retire first to Rome, and then to resume his school at Rheims. In the political events connected with the rise of Hugh Capet, he was again brought into prominence. The speech of the Bishop of Orleans at the Council of Rheims, which was his composition, shows us how his Mohammedan education had led him to look upon the state of things in

His reproaches against the Church. Christendom: "There is not one at Rome, it is notorious, who knows enough of letters to qualify him for a door-keeper; with what face shall he presume to teach who has never learned?" He does not hesitate to allude to papal briberies and papal crimes: "If King Hugh's ambassadors could have bribed the pope and Crescentius, his affairs had taken a different turn." He recounts the disgraces and crimes of the pontiffs: how John XII. had cut off the nose and tongue of John the Cardinal; how Boniface had strangled John XIII.; how John XIV. had been starved to death in the dungeons of the Castle of St. Angelo. He demands, "To such monsters, full of all infamy, void of all knowledge, human and divine, are all the priests of God to submit—men distinguished throughout the world for their learning and holy lives? The pontiff who *scorned* against his brother—who, when admonished, refuses to *listen*—is as a publican and a sinner."

With a prophetic inspiration of the accusations of the Reformation, he asks, "Is he not Anti-Christ?" He speaks of him as "the Man of Sin," "the Mystery of Iniquity." Of Rome he says, with an emphasis doubtless enforced by his Mohammedan experiences, "She has already lost the allegiance of the East; Alexandria, Antioch, Africa, and Asia are separate from her; Constantinople has broken loose from her; the interior of Spain knows nothing of the pope." He says, "How do your enemies say that, in deposing Arnulphus, we should have waited for the judgment of the Roman bishop? Can they say that his judgment is before that of God which our synod pronounced? The Prince of the Roman bishops and of the apostles themselves proclaimed that God must be obeyed rather than men; and Paul, the teacher of the Gentiles, announced anathema to him, though he were an angel, who should preach a doctrine different to that which had been delivered. Because the pontiff Marcellinus offered incense to Jupiter, must, therefore, all bishops sacrifice?" In all this there is obviously an insurgent spirit against the papacy, or, rather, against its iniquities.

In the progress of the political movements Gerbert was appointed to the archbishopric of Rheims. On this occasion, it is not without interest that we observe his worldly wisdom. It His ecclesiastical advancement. was desirable to conciliate the clergy—perhaps it might be done by the encouragement of marriage. He had lived in the polygamic court of the khalif, whose family had occasionally boasted of more than forty sons and forty daughters. Well then may he say, "I prohibit not marriage. I condemn not second marriages. I do not blame the eating of flesh." His election not only proved unfortunate, but, in the tortuous policy of the times, he was removed from the exercise of his episcopal functions and put under interdict. The speech of the Roman legate, Leo, who presided at his condemnation, gives us an insight into the nature of his offense, of the intention of Rome to persevere in her ignorance and superstition, and is an amusing example of ecclesiastical argument: "Because the vicars of Peter and their disciples will not have for their teachers a Plato, a Virgil, a Terence, and the rest of the herd of philosophers, who soar aloft like the birds of the air, and dive into the depths like the fishes of the sea, ye say that they are not worthy to be door-keepers, because they know not how to make verses. Peter is, indeed, a door-keeper—but of heaven!" He does not deny the systematic bribery of the pontifical government, but justifies it. "Did not the Savior receive gifts of the wise men?" Nor does he deny the crimes of the pontiffs, though he protests against those who would expose them, reminding them that "Ham was cursed for uncovering his father's nakedness." In all this we see the beginnings of that struggle between Mohammedan learning and morals and Italian ignorance and crime, at last to produce such important results for Europe.

Once more Gerbert retired to the court of the emperor. It was at the time that Otho III. was contemplating a revolution in the empire and a reformation of the Church. He saw how useful Gerbert might be to his policy, and had him appointed Archbishop of Ravenna, and, on the death of Gregory V., issued his decree for the election of Gerbert as pope. The Gerbert the pope, low-born French ecclesiastic, thus attaining to the utmost height of human ambition, took the name of Sylvester II., a name full of meaning.

But Rome was not willing thus to surrender her sordid interests; she revolted. Tusculum, the disgrace of the papacy, rebelled. It required the arms of the emperor to sustain his pontiff. For a moment it seemed as if the Reformation might have been anticipated by many centuries—that Christian Europe might have been spared the abominable papal disgraces awaiting it. There was a learned and upright pope, an able and youthful emperor; but Italian revenge, in the person of Stephanina, the wife of the murdered Crescentius, blasted all these expectations. From the hand of that outraged but noble criminal, who, with more than Roman firmness of purpose, could deliberately barter her virtue for vengeance, the unsuspecting emperor took the poisoned cup, and left Rome only to die. He was but twenty-two years of age. Sylvester, also, was irretrievably ruined by the drugs that had been stealthily mixed with his food. He soon followed his patron to the grave. His steam organs, physical experiments, mechanical inventions, foreign birth, and want of orthodoxy, confirmed the awful imputation that he was a necromancer. The mouth of every one was full of stories of mystery and magic in which Gerbert had borne a part. Afraid off in Europe, by their evening firesides, the goblin-scared peasants whispered to one another that in the most secret apartment of the palace at Rome there was concealed an impish dwarf, who wore a turban, and had a ring that could make him invisible, or give him two different bodies at the same time; that, in the midnight hours, strange sounds had been heard, when no one was within but the pope; that, while he was among the infidels in Spain, the future pontiff had bartered his soul to Satan, on condition that he would make him Christ's vicar upon earth, and now it was plain that both parties had been true to their compact. In their privacy, hollow-eyed monks muttered to one another under their cowls, "Homagium diabolo fecit et male finivit."

To a degree of wickedness almost irremediable had things thus come. The sins of the pontiffs were repeated, without any abatement, in all the clerical ranks. Simony and concubinage prevailed to an extent that threatened the authority of the Church over the coarsest minds. Ecclesiastical promotion could in all directions be obtained by purchase; in all directions there were priests boasting of illegitimate families. But yet, in the Church, there were men of irreproachable life, who, like

Peter Damiani, lifted up their voices against the prevailing scandal. He it was who proved that nearly every priest in Milan had purchased his preferment and lived with a concubine. The immoralities thus forced upon the attention of pious men soon began to be followed by the consequences that might have been expected. It is but a step from the condemnation of morals to the criticism of faith. The developing intellect of Europe could no longer bear the acts or the thoughts that it had heretofore submitted to. The dogma of transubstantiation led to revolt.

The early fathers delighted to point out the agreement of doctrines flowing from the principles of Christianity with those of Greek philosophy. For long it was asserted that a correspondence between faith and reason exists; but by degrees, as one dogma after another of a mysterious and unintelligible kind was introduced, and matters of belief could no longer be co-ordinated with the conclusions of the understanding, it became necessary to force the latter into a subordinate position. The great political interests involved in these questions suggested the expediency and even necessity of compelling such a subordination by the application of civil power. In this manner, as we have described, in the reign of Constantine the Great, philosophical discussions of religious things came to be discountenanced, and implicit faith required in the decisions of existing authority. Philosophy was subjugated and enslaved by theology. We shall now see what were the circumstances of her revolt.

In the solitude of monasteries there was every inducement for those who had become weary of self-examination to enter on the contemplation of the external world. Herein they found a field offering to them endless occupation, and capable of worthily exercising their acuteness. But it was not possible for them to take the first step without offending against the decisions established by authority. The alternative was stealthy proceeding or open mutiny; but before mutiny there occurs a period of private suggestion and another of more extensive discussion. It was thus that the German monk Gotschalk, in the ninth century, occupied himself in the profound problem of predestination, enduring the scourge and death in prison for the sake of his opinion. The presence of the Saracens in Spain offered an incessant provocation to the restless intellect of the West, now rapidly expanding, to indulge itself in such forbidden exercises. Arabian philosophy, unseen and silently, was diffusing itself throughout France and Europe, and churchmen could sometimes contemplate a refuge from their enemies among the infidel. In his extremity, Abelard himself expected a retreat among the Saracens—a protection from ecclesiastical persecution.

In the conflict with Gotschalk on the matter of predestination was al-

Commencing protest in the Church against its sins.

Primitive agreement of philosophy and theology.

Their gradual alienation.

The mutiny against theology commences among the monks.

Persecution of Gotschalk.

who sets up reason against authority. ready foreshadowed the attempt to set up reason against authority. John Erigena, who was employed by Hincmar, the Archbishop of Rheims, on that occasion, had already made a pilgrimage to the birthplaces of Plato and Aristotle, A.D. 825, and indulged the hope of uniting philosophy and religion in the manner proposed by the ecclesiastics who were studying in Spain.

From Eastern sources John Erigena had learned the doctrines of the eternity of matter, and even of the creation, with which, indeed, he founded the Deity himself. He was, therefore, a Pantheist; John Erigena falls into Pantheism. accepting the Oriental ideas of emanation and absorption; not only as respects the soul of man, but likewise all material things. In his work "On the Nature of Things," his doctrine is, "That, as all things were originally contained in God, and proceeded from him into the different classes by which they are now distinguished, so shall they finally return to him and be resolved into the source from which they came; in other words, that as, before the world was created, there was no being but God, and the causes of all things were in him, so, after the end of the world, there will be no being but God, and the causes of all things in him." This final resolution he denominated deification, or theosis. He even questioned the eternity of hell, saying, with the emphasis of a Saracen, "There is nothing eternal but God." It was impossible, under such circumstances, that he should not fall under the rebuke of the Church.

Transubstantiation, as being, of the orthodox doctrines, the least reconcilable to reason, was the first to be attacked by the new philosophers. What was, perhaps, in the beginning, no more than a jocose Mohammedan sarcasm, became a solemn subject of ecclesiastical discussion. Erigena strenuously upheld the doctrine of the Stercorists, who derived their name from the fact that they asserted a part of the consecrated elements to be voided from the body in the manner customary with other relics of food; a doctrine which was denounced by the orthodox, who declared that the priest could "make God," and that the eucharistic elements were not liable to digestion.

And now, A.D. 1050, Berengar of Tours prominently brought forward the controversy respecting the real presence. The question had been formularized by Radbert under the term transubstantiation, and the opinions entertained respecting the sacred elements greatly differed; mere fetish notions being entertained by some, by others the most transcendental ideas. In opposition to Radbert and the orthodox party, who asserted that those elements ceased to be what to the senses they appeared, and actually became transformed into the body and blood of the Savior, Berengar held that, though there is a real presence in them, that presence is of a spiritual nature. These heresies were condemned by repeated Berengar himself being offered the

choice of death or recantation. He wisely preferred the latter, but more wisely resumed his offensive doctrines as soon as he had escaped from the hands of his persecutors. As might be supposed from the philosophical indefensibility of the orthodox doctrine, Berengar's opinions, which, indeed, issued from those of Erigena, made themselves felt in the highest ecclesiastical regions, and, from the manner in which Gregory VII. dealt with the heresiarch, there is reason to believe that he himself had privately adopted the doctrines thus condemned.

The pope privately adopts them.

But it is in Peter Abelard that we find the representative of the insurgent spirit of those times. The love of Heloisa seems in our eyes to be justified by his extraordinary intellectual power. In his oratory, "The Paraclete," the doctrines of faith and the mysteries of religion were without any restraint discussed. No subject was too profound or too sacred for his contemplation. By the powerful and orthodox influence of St. Bernard, "a morigerous and mortified monk," the opinions of Abelard were brought under the rebuke of the authorities. In vain he appealed from the Council of Sens to Rome; the power of St. Bernard at Rome was paramount. "He makes void the whole Christian faith by attempting to comprehend the nature of God through human reason. He ascends up into heaven; he goes down into hell. Nothing can elude him, either in the height above or in the nethermost depths. His branches spread over the whole earth. He boasts that he has disciples in Rome itself, even in the College of Cardinals. He draws the whole earth after him. It is time, therefore, to silence him by apostolic authority." Such was the report of the Council of Sens to Rome, A.D. 1140.

Peter Abelard among the insurgents.

St. Bernard attacks him.

Perhaps it was not so much the public accusation that Abelard denied the doctrine of the Trinity, as his assertion of the supremacy of reason—which clearly betrayed his intention of breaking the thralldom of authority—that insured his condemnation. It was impossible to restrict the rising discussions within their proper sphere, or to keep them from the perilous ground of ecclesiastical history. Abelard, in his work entitled "Sic et Non," sets forth the contradictory opinions of the fathers, and exhibits their discord and strifes on great doctrinal points, thereby insinuating how little of unity there was in the Church. It was a work suggesting a great deal more than it actually stated, and was inevitably calculated to draw down upon its author the indignation of those whose interests it touched.

The book "Sic et Non."

Out of the discussions attending these events sprang the celebrated doctrines of Nominalism and Realism, though the terms themselves seem not to have been introduced till the end of the twelfth century. The Realists thought that the general types of things had a real existence; the Nominalists, that they were merely a mental abstraction expressed by a word. It was therefore the old Greek

Scholastic philosophy, rise of.

dispute revived. Of the Nominalists, Roscelin of Compiègne, a little before A.D. 1100, was the first distinguished advocate; his materializing views, as might be expected, drawing upon him the reproof of the Church. In this contest, Anselm, the Archbishop of Canterbury, attempted to harmonize reason in subordination to faith, and again, by his example, demonstrated the necessity of submitting all such questions to the decision of the human intellect.

The development of scholastic philosophy, which dates from the time of Erigena, was accelerated by two distinct causes: the dreadful materialization into which, in Europe, all sacred things had fallen, and the illustrious example of the Mohammedans, who already, by their physical inquiries, had commenced a career destined to end in brilliant results. The Spanish universities were filled with ecclesiastics from many parts of Europe. Peter the Venerable, the friend and protector of Abelard, who had spent much time in Cordova, and not only spoke Arabic fluently, but actually translated the Koran into Latin, mentions that, on his first arrival in Spain, he found many learned men, even from England, studying astronomy. The reconciliation of many of the dogmas of authority with common sense was impossible for men of understanding. Could the clear intellect of such a statesman as Hildebrand be for a moment disgraced by accepting the received view of a doctrine like that of transubstantiation? His great difficulty was to reconcile what had been rendered orthodox by the authority of the Church with the suggestions of reason, or even with that reverence for holy things which is in the heart of every intelligent man. In such sentiments we find an explanation of the lenient dealings of that stern ecclesiastic with the heretic Berengar. He saw that it was utterly impossible to offer any defense of many of the materialized dogmas of the age, but then those dogmas had been put forth as absolute truth by the Church. Things had come to the point at which reason and theology must diverge; yet the Italian statesmen did not accept this issue without an additional attempt, and, under their permission, Scholastic Theology, which originated in the scholastic philosophy of Erigena and his followers, sought, in the strange union of the Holy Scriptures, the Aristotelian Philosophy, and Pantheism, to construct a scientific basis for Christianity. Heresy was to be combated with the weapons of the heretics, and a co-ordination of authority and reason effected. Under such auspices scholastic philosophy pervaded the schools, giving to some of them, as the University of Paris, a fictitious reputation, and leading to the foundation of others in other cities. It answered the object of its politic promoters in a double way, for it raised around the orthodox theology an immense and impenetrable bulwark of what seemed to be profound learning, and also diverted the awakening mind of Western Europeans from the questions which, if profitless, were yet exciting

Nominalism
and Realism.

The Arabs in
Spain promote these
discussions.

Rise of Scholas-
tic Theology.

and without danger to the existing state of things. In that manner was put off for a while the inevitable day in which philosophy and theology were to be brought in mortal conflict with each other. It was doubtless seen by Hildebrand and his followers that, though Berengar had set the example of protesting against the principle that the decision of a majority of voters in a council or other collective body should ever be received as ascertaining absolute truth, yet so great was the uncertainty of the principles on which the scholastic philosophy was founded, so undetermined its mental exercise, so ineffectual the results to which it could attain, that it was unlikely for a long time to disturb the unity of doctrine in the Church. While men were reasoning round and round again in the same vicious circle without finding any escape, and indeed without seeking any, delighted with the dexterity of their movements, but never considering whether they were making any real advance, it was unnecessary to anticipate inconvenience from their progress.

Here stood the difficulty. The decisions of the Church were asserted to be infallible and irrevocable; her philosophy, if such it can be called—as must be the case with any philosophy reposing upon a final revelation from God—was stationary. But the awakening mind of the West was displaying, in an unmistakable way, its propensity to advance. As one who rides an unruly horse will sometimes divert him from a career which could not be checked by main force by reining him round and round, and thereby exhausting his spirit and strength, and keeping him in a narrow space, so the wanton efforts of the mind may be guided, if they can not be checked. These principles of policy answered their object for a time, until metaphysical were changed for physical discussions. Then it became impossible to divert the onward movement, and on the first great question arising—that of the figure and place of the earth—a question dangerous to the last degree, since it inferentially included the determination of the position of man in the universe, theology suffered an irretrievable defeat. Between her and philosophy there was henceforth no other issue than a mortal duel.

Though Erigena is the true founder of Scholasticism, Roscelin, already mentioned as renewing the question of Platonic Universals, has been considered by some to be entitled to that distinction. After him, William of Champeaux opened a school of logic in Paris, A.D. 1109, and from that time the University made it a prominent study. On the rise of the mendicant orders, Scholasticism received a great impulse, perhaps, as has been affirmed, because its disputations suited their illiterate state; Thomas Aquinas, the Dominican, and Duns Scotus, the Franciscan, founding rival schools, which wrangled for three centuries. In Italy, Scholasticism never prevailed as it did in France

Its advantages in the existing state of the Church.

The philosophical dilemma of the Church.

Course of Scholasticism.

and elsewhere, and at last it died away, its uselessness, save in the political result before mentioned, having been detected.

The middle of the eleventh century ushers in an epoch for the papacy and for Europe. It is marked by an attempt at a moral reformation in the Church—by a struggle for securing the independence of the papacy both of the Emperors of Germany and of the neighboring Italian nobles—thus far the pope being the mere officer of the emperor, and often the creature of the surrounding nobility—by the conversion of the temporalities of the Church, heretofore indirect, into absolute possessions, by securing territories given “to the Church, the blessed Peter, and the Roman republic” to the first of those beneficiaries, excluding the last. As events proceeded, these minor affairs converged, and out of their union arose the great conflict of the imperial and papal powers for supremacy. The same policy which had succeeded in depriving the Roman people of any voice in appointments of popes—which had secularized the Church in Italy, for a while seized all the material resources of Europe through the device of the Crusades, and nearly established a papal autocracy in all Europe. These political events demand from us a notice, since from them arose intellectual consequences of the utmost importance.

The second Lateran Council, under Nicolas II., accomplished the result of vesting the elective power to the papacy in the cardinals. That was a great revolution. It was this council which gave to Berengar his choice between death and recantation. There were at this period three powers engaged in Italy—the Imperial, the Church party, and the Italian nobles. It was for the sake of holding the last in check—for, since it was the nearest, it required the most unremitting attention—that Hildebrand had advised the popes who were his immediate predecessors to use the Normans, who were settled in the south of the peninsula, by whom the lands of the nobles were devastated. Thus the difficulties of their position led the popes to a repetition of their ancient policy; and as they had, in old times, sought the protection of the Frankish kings, so now they sought that of the Normans. But in the midst of the dissensions and tumults of the times, a great man was emerging—Hildebrand, who, with almost superhuman abnegation, again and again abstained from making himself pope. On the death of Alexander II. his opportunity came, and, with acceptable force, he was raised to that dignity, A.D. 1073.

Scarcely was Hildebrand Pope Gregory VII. when he vigorously proceeded to carry into effect the policy he had been preparing during the pontificates of his predecessors. In many respects the times were propitious. The blameless lives of the German popes had cast a veil of oblivion over the abominations of their Italian predecessors. Hildebrand addressed himself to tear out every vestige of si-

Reaction in the papacy against these pressures.

Preparation for a concentration of the papal power.

Three parties in Italy.

Hildebrand becomes pope.

Hildebrand resolves on a reform.

mony and concubinage with a remorseless hand. That task must be finished before he could hope to accomplish his grand project of an ecclesiastical autocracy in Europe, with the pope at its head, and the clergy, both in their persons and property, independent of the civil power; and it was plain that, apart from all moral considerations, the supremacy of Rome in such a system altogether turned on the celibacy of the clergy. If marriage was permitted to the ecclesiastic, what was to prevent him from handing down, as an hereditary possession, the wealth and dignities he had obtained. In such a state of things, the central government at Rome necessarily stood at every disadvantage against the local interests of an individual, and still more so if many individuals should combine together to promote, in common, similar interests. But very different would it be if the promotion must be looked for from Rome—very different as regards the hold upon public sentiment, if such a descent from father to son was absolutely prevented, and a career fairly opened to all irrespective of their station in life. To the Church it was to the last degree important that a man should derive his advancement from her, not from his ancestor. In the trials to which she was perpetually exposed, there could be no doubt that by such persons her interests would be best served.

In these circumstances Gregory VII. took his course. The synod held at Rome in the first year of his pontificate denounced the marriage of the clergy, enforcing its decree by the doctrine that the efficacy of the sacraments altogether depended on their being administered by hands sinless in that respect, and made all communicants partners in the pastoral crime. With a provident foresight of the coming opposition, he carried out the policy he had taught his predecessors of conciliating the Normans in the south of Italy, though he did not hesitate to resist them, by the aid of the Countess Matilda, when they dared to touch the possessions of the Church. It was for the sake of this that the Norman invasion of England under William the Conqueror had already been approved of, a consecrated standard and a ring containing a hair from the head of St. Peter sent him, and permission given for the replacement of Saxon bishops and other dignitaries by Normans. It was not forgotten how great had been the gains to the papacy, three centuries before, by changing the dynasty of the Franks; and thus the policy of an Italian town gave a permanent impress to the history of England. Hildebrand foresaw that the sword of the Italian-Norman would be wanted to carry out his projected ends. He did not hesitate to authorize the overthrow of a Saxon dynasty by the French-Norman, that he might be more sure of the fidelity of that sword. Without the countenance of the pope, the Norman could never have consolidated his power, nor even held his ground in England.

From these movements of the papacy sprang the conflict with the

The conflict on investitures. Emperors of Germany respecting investitures. The Bishop of Milan—who, it appears, had perjured himself in the quarrel respecting concubinage—had been excommunicated by Alexander II. The imperial council appointed as his successor one Godfrey; the pope had nominated Atto. Hereupon Alexander had summoned the emperor to appear before him on a charge of simony, and granting investitures without his approbation. While the matter was yet in abeyance, Alexander died; but Gregory took up the contest. A synod he had assembled ordered that, if any one should accept investiture from a layman, both the giver and receiver should be excommunicated. The pretense against lay-investiture was that it was a usurpation of a papal right, and that it led to the appointment of evil and ignorant men; the reality was a determination to extend papal power, by making Rome the fountain of emolument. Gregory, by his movements, had thus brought upon himself three antagonists—the imperial power, the Italian nobles, and the married clergy. The latter, unscrupulous and exasperated, met him with his own weapons, not hesitating to calumniate his friendship with the Countess Matilda. It was also suspected that they were connected with the outrage perpetrated by the nobles that took place in

Outrage on Hildebrand. Rome. On Christmas night, A.D. 1075, in the midst of a violent rain, while the pope was administering the communion, a band of soldiers burst into the church, seized Gregory at the altar, stripped and wounded him, and haling him on horseback behind one of the soldiers, carried him off to a strong-hold, from which he was rescued by the populace by force. But, without wavering for a moment, the undaunted pontiff pressed on his conflict with the imperial power, summoning Henry to Rome to account for his delinquencies, and threatening his excommunication if he should not appear before an appointed day. In haste, under the auspices of the king, a synod was assembled at Worms; charges against the pope of licentious life, bribery, necromancy, simony, murder, atheism, were introduced, and sentence of deposition pronounced against him. On his side, Gregory assembled the third Lateran Council, A.D. 1076, placed King Henry under interdict, absolved his subjects from allegiance, and deposed him. A series of

He defines the position of the Church. constitutions, clearly defining the new bases of the papal system, was published. They were to the following effect: "That the Roman pontiff can alone be called universal; that he alone has a right to depose bishops; that his legates have a right to preside over all bishops in a general council; that he can depose absent prelates; that he alone has a right to use imperial ornaments; that princes are bound to kiss his feet, and his only; that he has a right to depose emperors; that no synod or council summoned without his commission can be called general; that no book can be called canonical without his authority; that his sentence can be annulled by none, but that he may annul the

decrees of all; that the Roman Church has been, is, and will continue to be infallible; that whoever dissents from it ceases to be a catholic Christian, and that subjects may be absolved from their allegiance to wicked princes." The power that could assert such resolutions was near its culmination.

And now was manifest the superiority of the spiritual over the temporal power. The quarrel with Henry went on, and, after a hard struggle and many intrigues to draw the Normans over to him, that monarch was compelled to submit, and in the depth of winter to cross the snowy Alps, under circumstances of unparalleled hardship, to seek absolution from his adversary. Then ensued the scene at Canosa—a penitent in white raiment standing in the dreary snow of three winter days, January, 1077, cold and fasting at the gate, seeking pardon and reconciliation of the inexorable pontiff; that penitent was the King of Germany. Then ensued the dramatic scene at the sacrament, in which the gray-haired pontiff called upon Heaven to strike him dead upon the spot if he were not innocent of the crimes of which he had been accused, and dared the guilty monarch to do the same.

Whoever will reflect on these interesting events can not fail to discern two important conclusions. The tone of thought throughout Europe had changed within the last three ages; ideas were entertained, doctrines originated or controverted, a policy conceived and attempted altogether in advance of the old times. Intellect, both among the clergy and the laity, had undergone a great development. But the peculiar character of the papal power is also ascertained—that it is worldly, and the result of the policy of man. The outrage on Hildebrand shows how that power had diminished at its centre, but the victory over Henry that it maintained its strength at a distance. Natural forces diminish as the distance increases; this unnatural force displayed an opposite quality.

Gregory had carried his point. He had not only beaten back the Northern attack, but had established the supremacy of the ecclesiastical over the temporal power, and that point, with inflexible resolution, he maintained, though in its consequences it cost Germany many a civil war. But, while he was thus unyielding in his temporal policy, there is reason to suppose that he was not without misgivings in his theological belief. In the war between Henry and his rival Rodolph, Gregory was compelled by policy to be at first neutral. He occupied himself with the Eucharistic controversy. This was at the time that he was associated with Berengar, who lived with him for a year. Nor did the pope think it unworthy of himself to put forth, in excuse of the heretic, a vision, in which the Virgin Mary had asserted the orthodoxy of Berengar; but, as his quarrel with King Henry went on to new excommunications and depositions, a synod of bishops

and overcomes the
King of Germany.

Conclusions from
these events.

Culmination
of the ecclesiastical power.

Friendship of
Hildebrand
and Berengar.

presumed to condemn him as a partisan of Berengar and a necromancer. On the election of Gilbert of Ravenna as antipope, Gregory, without hesitation, pushed his principles to their consequences, denouncing kingship as a wicked and diabolical usurpation, an infraction of the equal rights of man. Hereupon Henry determined to destroy him or to be destroyed; and descending again into Italy, A.D. 1081, for three successive years laid siege to Rome. In vain the amorous Matilda, with more than the devotion of an ally, endeavored to succor her beleaguered friend. The city surrendered to Henry at Christmas, A.D. 1084. With his antipope he entered it, receiving from his hands the imperial crown. The Norman allies of Hildebrand at last approached in strength. The emperor was compelled to retreat. A feeble attempt to hold the city was made. The Normans took it by surprise, and released Gregory from his imprisonment in the Castle of St. Angelo. An awful scene ensued. Some conflicts between the citizens and the Normans occurred; a battle in the streets was the consequence, and Rome was pillaged, sacked, and fired. Streets, churches, palaces, were left a heap of smoking ashes. The people by thousands were massacred. The Saracens, of whom there were multitudes in the Norman army, were in the Eternal City at last, and, horrible to be said, were there as the hired supporters of the Vicar of Christ. Matrons, nuns, young women, were defiled. Crowds of men, women, and children were carried off and sold as slaves. It was the treatment of a city taken by storm. In consternation, the blasted pontiff retired, with his infidel deliverers, from the ruined capital to Salerno, and there he died, A.D. 1085.

The German contest resumed.

The Mohammedans support Hildebrand.

Sack of Rome, and death of the pope.

He had been dead ten years, when a policy was entered upon by the papacy which imparted to it more power than all the exertions of Gregory. The Crusades were instituted by a French pope, Urban II. Unpopular in Italy, perhaps by reason of his foreign birth, he aroused his native country for the recovery of the Holy Land. He began his career in a manner not now unusual, interfering in a quarrel between Philip of France and his wife, taking the part of the latter, as experience had shown it was always advisable for a pope to do. Soon, however, he devoted his attention to something more important than these matrimonial broils. It seems that a European crusade was first distinctly conceived of and its value most completely comprehended by Gerbert, to whom, doubtless, his Mohammedan experiences had suggested it. In the first year of his pontificate, he wrote an epistle, in the name of the Church of Jerusalem, to the Church throughout the world, exhorting Christian soldiers to come to her relief either with arms or money. It had been subsequently contemplated by Gregory VII. For many years, pilgrimages to Palestine had been on the increase; a very valuable export trade in that country had arisen; crowds from

all parts of Europe had of late made their way to Jerusalem, for the singular purpose of being present at the great assize which the Scriptures were supposed to prophesy would soon take place in the Valley of Jehoshaphat. The Mohammedans had inflicted on these pious persons much maltreatment, being unable to comprehend the purport of their extraordinary journey, and probably perceiving a necessity of putting some restriction upon the apparition of such countless multitudes. Peter the Hermit, who had witnessed the barbarities to which his Christian brethren were exposed, and the abominations of the holy places now in the hands of the infidel, roused Europe, by his preaching, to a frantic state; and Urban, at the Council of Clermont, A.D. 1095, gave authority to the Holy War. "It is the will of God," was the unanimous shout of the council and the populace. The periodical shower of shooting stars was seen with remarkable brilliancy on April 25th, and mistaken by the council for a celestial monition that the Christians must precipitate themselves in like manner on the East. From this incident we may perceive how little there was of inspiration in these blundering and violent ecclesiastical assemblages; the moment that they can be brought to a scientific test their true nature is detected. As a preliminary exercise, a ferocious persecution of the Jews of France had burst forth, and the blood and tortures of multitudes offered a tardy expiation for the crimes that their ancestors had committed at the Crucifixion in Jerusalem, more than a thousand years before.

The Council of Clermont authorizes a crusade.

It does not fall within my plan to give a detailed description of the Crusades. It is enough to say that, though the clergy had promised the protection of God to every one who would thus come to his assistance—an ample reward for their pious work in this life, and the happiness of heaven in the next—Urban's crusade failed not only disastrously, but hideously, so far as the ignorant rabbles, who, under Peter the Hermit and Walter the Penniless, were concerned. Nevertheless, under the better-organized expeditions that soon followed, Jerusalem was captured, July 15th, A.D. 1099. The long and ghastly line of bones whitening the road through Hungary to the East showed how different a thing it was for a peaceable and solitary pilgrim to beg his way, with his staff, and wallet, and scallop-shell, and a disorderly riot of thousands upon thousands to rush forward without any subordination, any organization, trusting only to the providence of God. The van of the Crusades consisted of two hundred and seventy-five thousand men, accompanied by eight horses, and preceded by a goat and a goose, into which some one had told them that the Holy Ghost had entered. Driven to madness by disappointment and famine—expecting, in their ignorance, that every town they came to must be Jerusalem—in their extremity they laid hands on whatever was in their way. Their track was marked by robbery, bloodshed, and fire. In the first crusade more than half

The first crusade.

a million of men died. It was far more disastrous than the Moscow retreat.

But still, in a military sense, the first crusade accomplished its object. Storming of Jerusalem. The capture of Jerusalem, as might be expected under such circumstances, was attended by the perpetration of atrocities almost beyond belief. What a contrast to the conduct of the Arabs! When the Khalif Omar took Jerusalem, A.D. 637, he rode into the city by the side of the Patriarch Sophronius, conversing with him on its antiquities. At the hour of prayer, he declined to perform his devotions in the Church of the Resurrection, in which he chanced to be, but prayed on the steps of the Church of Constantine; "for," said he to the patriarch, "had I done so, the Mussulmen in a future age would have infringed the treaty, under color of imitating my example." But, in the capture by the Crusaders, the brains of young children were dashed out against the walls; infants were pitched over the battlements; every woman that could be seized was violated; men were roasted at fires; some were ripped up, to see if they had swallowed gold; the Jews were driven into their synagogue, and there burnt; a massacre of nearly 70,000 persons took place; and the pope's legate was seen "partaking in the triumph."

It had been expected by the politicians who first projected these wars Political results of the Crusades. that they would heal the divisions of the Latin and Greek churches, and give birth to a European republic, under the spiritual presidency of the pope. In these respects they proved a failure. It does not appear that the popes themselves personally had ever any living faith in the result. Not one of them ever joined a crusade; and the Church, as a corporation, took care to embark very little money in these undertakings. But, though they did not answer to the original intention, they gave, in an indirect way, a wonderful stimulus to the papal power. Under the plausible pretenses offered by them, the pope obtained control over the person of every Christian man from the highest to the lowest. Give to Rome the control of men and money in Europe. The cross once taken, all civil control over the Crusader ceased—he became the man of the Church.

Under those pretenses also, a right was imperceptibly acquired of raising revenue in all parts of Europe; even the clergy might be assessed. A drain was thus established on the resources of distant nations for an object which no man dared to gainsay; if he adventured on any such thing, he must encounter the odium of an infidel—an atheist. A steady stream of money flowed into Italy. Nor was it alone by this taxation of every Christian nation without permission of its government—this empire within every empire—immense wealth accrued to the projectors, while the infatuation could be kept up, by the diminished rate at which land could be obtained. Domains were thrown into the market; there were few purchasers but the Church. Immense domains were also given

away by weak-minded sinners, and those on the point of death, for the salvation of their souls. Thus, all things considered, the effect of the Crusades, though not precisely that which was expected, was of singular advantage to the Church, giving it a commanding strength it had never possessed before.

In their resistance to the German attack the popes never hesitated at any means. They prompted Prince Henry to revolt against their great antagonist, his father; they intervened, not to rebuke, but to abet him, when he threw his father into prison and deprived him of the necessities of life. They carried their vengeance beyond the grave. When the aged emperor, broken in heart, escaped from their torment, and was honorably buried by the Bishop of Liege, that prelate was forthwith excommunicated and compelled to disinter the corpse. But crimes like these, against which human nature revolts, meet with a retribution. This same Prince Henry, becoming Henry V., was forced by Resistance of Henry V. circumstances to resume his father's quarrel, and to refuse to yield his right of granting investitures. He marched upon Rome, and at the point of the sword compelled his adversary, Pope Paschal II., to surrender all the possessions and royalties of the Church—compelled him to crown him emperor—not, however, until the pontiff had been subjected to the ignominy of imprisonment, and brought into condemnation among his own party.

Things seemed to be going to ruin in Rome, and such must inevitably have been the issue, had not an extraneous influence arisen in Bernard of Clairvaux, to whom Europe learned to look up as the Bernard of Clairvaux stimulates the second crusade. beater down of heresies, theological and political. He had been a pupil of William of Champeaux, the vanquished rival of Abelard, and Abelard he hated with a religious and personal hate. He was a wonder-worker, though some of his miracles now only excite a smile; as when he excommunicated the flies which infested a church, and they all fell down dead and were swept out by the basketful. He has been described as "the mellifluous doctor, whose works are not scientific, but full of unction." He could not tolerate the principle at the basis of Abelard's philosophy—the assertion of the supremacy of reason. Of Arnold of Brescia—who carried that principle to its political consequences, and declared that the riches and power of the clergy were inconsistent with their profession—he was the accuser and punisher. Bernard preached a new crusade, authenticating his power by miracles, affirmed to be not inferior to those of our Savior; promising to him who should slay an unbeliever happiness in this life and Paradise in the life to come. This second crusade was conducted by kings, and included fanatic ladies, dressed in the armor of men; but it ended in ruin. Its failure.

It was reserved for the only Englishman who ever attained to the papacy to visit Rome with the punishment she had so often inflicted upon

others. Nicolas Breakspear—Hadrian IV.—put the Eternal City under interdict, thereby ending the republic which the partisans of Arnold of Brescia had set up. But herein he was greatly aided by a change of sentiment in many of the inhabitants of Rome, who had found to their cost that it was more profitable for their city to be the centre of Christianity than the seat of a phantom republic. As an equivalent for his coronation by Hadrian, Frederick Barbarossa agreed to surrender to the Church Arnold of Brescia. With indecent haste, the moment she had obtained possession of her arch enemy she put him to death—Murder of Arnold of Brescia.—not delivering him over to the secular arm, as the custom had been, but murdering him with her own hand. Seven centuries have elapsed, and the blood of Arnold is still crying from the ground for retribution. Notwithstanding a new—the third—crusade, things went from bad to worse in the Holy Land. Saladin had retaken Jerusalem, A.D. 1187. Barbarossa was drowned in a river in Pisidia. Richard of England was treacherously imprisoned; nor did the pope interfere for this brave soldier of the Cross. In the mean time, the Emperors of Germany had acquired Sicily by marriage—an incident destined to be of no little importance in the history of Europe; for, on the Birth of Frederick II. death of the Emperor Henry VI. at Messina, his son Frederick, an infant not two years old, was left to be brought up in that island. What the consequences were we shall soon see.

Review of the preceding events. If we review the events related in this chapter, we find that the idolatry and immorality into which Rome had fallen had become connected with material interests sufficiently powerful to cause their perpetuation; that converted Germany insisted on a reform, and therefore made a moral attack upon the Italian system, attempting to carry it into effect by civil force. This attack was, properly speaking, purely moral, the intellectual element accompanying it being derived from Western or Arabian influences, as will be shown in the next chapter; and, in its resistance to this, the papacy was not only successful, but actually was able to retaliate, overthrowing the Emperors of Germany, and being even on the point of establishing a European autocracy, with the pope at its head. It was in these events that the Reformation began, though circumstances intervened to postpone its completion to the era of Luther. Henceforth we see more and more plainly the attitude in which the papacy, through its material interests, was compelled to stand, as resisting all intellectual advancement. Our subject has therefore here to be left unfinished until we shall have described the Mohammedan influences making pressures on the West and the East.

CHAPTER XVI.

THE AGE OF FAITH IN THE WEST—(Continued).

THE WESTERN OR INTELLECTUAL ATTACK ON THE ITALIAN SYSTEM.

The intellectual Condition of Christendom contrasted with that of Arabian Spain.

Diffusion of Arabian intellectual Influences through France and Sicily.—Example of Saracen Science in Alhazen, and of Philosophy in Algazzali.—Innocent III. prepares to combat these Influences.—Results to Western Europe of the Sack of Constantinople by the Catholics.

The spread of Mohammedan light Literature is followed by Heresy.—The crushing of Heresy in the South of France by armed Force, the Inquisition, mendicant Orders, auricular Confession, and Casuistry.

The rising Sentiment is embodied in Frederick II. in Sicily.—His Conflict with and Overthrow by the Pope.—Spread of Mutiny among the mendicant Orders.

A PRESSURE upon the Italian system had meantime been arising in the West. It was due to the presence of the Arabs in Spain. The pressure from the West upon Rome. It is necessary, therefore, to relate the circumstances of their invasion and conquest of that country, and to compare their social and intellectual condition with the contemporary state of Christendom.

From the barbarism of the native people of Europe, who could scarcely be said to have emerged from the savage state, unclean in person, benighted in mind, inhabiting huts in which it was a Barbarism of Europe. mark of wealth if there were bulrushes on the floor and straw mats against the wall; miserably fed on beans, vetches, roots, and even the bark of trees; clad in garments of untanned skin, or at the best of leather—perennial in durability, but not conducive to personal purity—a state in which the pomp of royalty was sufficiently and satisfactorily manifested in the equipage of the sovereign, an ox-cart, drawn by not less than two yokes of cattle, quickened in their movements by the goads of pedestrian serfs, whose legs were wrapped in wisps of straw; from a people, devout believers in all the wild fictions of shrine-miracles and preposterous relics; from the degradation of a base theology, and from the disputes of ambitious ecclesiastics for power, it is pleasant to turn to the southwest corner of the continent, where, under auspices of a very different kind, the irradiations of light were to break forth. The crescent in the West was soon to pass eastward to its full.

But I must retrace my steps through four centuries, and resume the description of the Arabian movement after the subjugation of Africa, as related on page 247.

These were the circumstances of the Arab conquest of Spain. In that

country the Arian Creed had been supplanted by the orthodox, and the customary persecutions had set in. From the time of the Em-
Arab invasion of Spain. peror Hadrian, who had transported 50,000 Jewish families into Spain, that race had singularly increased, and, as might be expected, had received no mercy at the hands of the orthodox. Ninety thousand individuals had recently suffered compulsory baptism, and so had been brought under the atrocious Catholic law that whoever has been baptized shall be compelled to continue the observances of the Church. The Gothic monarchy was elective, and Roderic had succeeded to the throne, to the prejudice of the heirs of his predecessor. Though a very brave soldier, he was a luxurious and a licentious man. It was the custom of the Goths to send their children to Toledo to be educated, and, under these circumstances, a young girl of extraordinary beauty, the daughter of Count Julian, governor of Ceuta in Africa, was residing there. King Roderic fell passionately in love with her, and, being unable to overcome her virtuous resolution by persuasion, resorted to violence. The girl found means to inform her father of what had occurred. "By the living God!" exclaimed the count, in a paroxysm of rage, "I will be revenged." But, dissembling his wrath, he crossed over into Spain, had an understanding with Oppas, the Archbishop of Toledo, and other disaffected ecclesiastics, and, under specious pretenses, lulled the suspicions of Roderic, and brought his daughter away. And now he opened communications with the Emir Musa, prevailing upon him to attempt the conquest of the country, and offering that he himself would take the lead. The conditions were settled between them, and the consent of the khalif to the expedition obtained. Tarik, a lieutenant of the emir, was sent across the Straits with the van of the army. He landed on the rock called, in memory of his name, Gibraltar, April, A.D. 711. In the battle that ensued, a part of Roderic's troops, together with the Archbishop of Toledo, consummated their treasonable compact, and de-
the conquest. serted to the Arabs; the rest were panic-stricken. In the rout, Roderic himself was drowned in the waters of the Guadalquivir.

Tarik now proceeded rapidly northward, and was soon joined by his superior, the Emir Musa, who was not, perhaps, without jealousy at his success. As the Arab historians say, the Almighty delivered the idolators into their hand, and gave them one victory after another. As the towns successively fell, they left them in charge of the Jews, to whose revenge the conquest was largely due, and who could be thoroughly trusted; nor did they pause in their march until they had passed the French frontier and reached the Rhone. It was the intention of Musa to cross the European continent to Constantinople, subjugating the Frank, German, and Italian barbarians by the way. At this time it seemed impossible that France could escape the fate of Spain; and if she fell, the threat of Musa would inevitably have come to pass, that he

would preach the Unity of God in the Vatican. But a quarrel had arisen between him and Tarik, who had been imprisoned and even scourged. The friends of the latter, however, did not fail him at the court of Damascus. An envoy from the Khalif Alwalid appeared, ordering Musa to desist from his enterprise, to return to Syria, and exonerate himself of the things laid to his charge. But Musa bribed the envoy to let him advance. Hereupon the angry khalif dispatched a second messenger, who, in face of the Moslems and Christians, audaciously arrested him, at the head of his troops, by the bridle of his horse. The conqueror of Spain was compelled to return. He was cast into prison, fined 200,000 pieces of gold, publicly whipped, and his life with difficulty spared. As is related of Belisarius, Musa was driven as a beggar to solicit charity, and the Saracen conqueror of Spain ended his days in grief and absolute want.

These dissensions among the Arabs, far more than the sword of Charles Martel, prevented the Mohammedanization of France. Their historians admit the great check received at the battle of Tours, in which Abderrahman was killed; they call that Arrest of Mohammedanism in Western Europe. field the Place of the Martyrs; but their accounts by no means correspond to the relations of the Christian authors, who affirm that 375,000 Mohammedans fell, but only 1500 Christians. The defeat was not so disastrous but that in a few months they were able to resume their advance, and their progress was arrested only by renewed dissensions among themselves—dissensions not alone among the leaders in Spain, but also more serious ones of aspirants for the khalifate in Asia. On the overthrow of the Ommiade house, Abderrahman, one of that family, escaped to Spain, which repaid the patronage of its conquest by acknowledging him as its sovereign. He made Cordova the seat of his government. Neither he nor his immediate successors took any other title than that of emir, out of respect to the khalif, who resided at Bagdad, the metropolis of Islam, though they maintained a rivalry with him in the patronage of letters and science. Abderrahman himself strengthened his power by an alliance with Charlemagne.

Scarcely had the Arabs become firmly settled in Spain before they commenced a brilliant career. Adopting what had now become the established policy of the Commanders of the Faithful in Asia, the Khalifs of Cordova distinguished themselves as Civilization and splendor of the Spanish Arabs. patrons of learning, and set an example of refinement strongly contrasting with the condition of the native European princes. Cordova, under their administration, at its highest point of prosperity, boasted of more than two hundred thousand houses, and more than a million of inhabitants. After sunset, a man might walk through it in a straight line for ten miles by the light of the public lamps. Seven hundred years after this time there was not so much as one public lamp in London. Its

streets were solidly paved. In Paris, centuries subsequently, whoever stepped over his threshold on a rainy day stepped up to his ankles in mud. Other cities, as Granada, Seville, Toledo, considered themselves rivals of Cordova. The palaces of the khalifs were magnificently decorated. Those sovereigns might well look down with supercilious contempt on the dwellings of the rulers of Germany, France, and England, which were scarce better than stables—chimneyless, windowless, and with a hole in the roof for the smoke to escape, like the wigwams of certain Indians. The Spanish Mohammedans had brought with them all the luxuries and prodigalities of Asia. Their residences stood forth against the clear blue sky, or were embosomed in woods. They had polished marble balconies, overhanging orange-gardens; courts with cascades of water; shady retreats provocative of slumber in the heat of the day; retiring-rooms, vaulted with stained glass, speckled with gold, over which streams of water were made to gush; the floors and walls were of exquisite mosaic. Here, a fountain of quicksilver shot up in a glistening spray, the glittering particles falling with a tranquil sound like fairy bells; there, apartments into which cool air was drawn from flower-gardens, in summer, by means of ventilating towers, and in the winter through earthen pipes, or caleducts, imbedded in the walls—the hypocaust, in the vaults below, breathing forth volumes of warm and perfumed air through these hidden passages. The walls were not covered with wainscot, but adorned with arabesques, and paintings of agricultural scenes and views of Paradise. From the ceilings, corniced with fretted gold, great chandeliers hung, one of which, it is said, was so large that it contained 1084 lamps. Clusters of frail marble columns surprised the beholder with the vast weights they bore. In the boudoirs of the sultanas they were sometimes of verd antique, and incrustated with lapis lazuli. The furniture was of sandal and citron wood, inlaid with mother-of-pearl, ivory, silver, or relieved with gold and precious malachite. In orderly confusion were arranged vases of rock crystal, Chinese porcelains, and tables of exquisite mosaic. The winter apartments were hung with rich tapestry; the floors were covered with embroidered Persian carpets. Pillows and couches, of elegant forms, were scattered about the rooms, which were perfumed with frankincense. It was the intention of the Saracen architect, by excluding the view of the external landscape, to concentrate attention on his work; and since the representation of the human form was religiously forbidden, and that source of decoration denied, his imagination ran riot with the complicated arabesques he introduced, and sought every opportunity of replacing the prohibited works of art by the trophies and rarities of the garden. For this reason, the Arabs never produced artists; religion turned them from the beautiful, and they became soldiers, philosophers, and men of affairs. Splendidly and exotically ornamented the court-

yards and even the inner chambers. Great care was taken to make due provision for the cleanliness, occupation, and amusement of the inmates. Through pipes of metal, water, both warm and cold, to suit the season of the year, ran into baths of marble; in niches, where the current of air could be artificially directed, hung dripping alcarazzas. There were whispering-galleries for the amusement of the women; labyrinths and marble play-courts for the children; for the master himself, grand libraries. The Khalif Alhakem's was so large that the catalogue alone filled forty volumes. He had also apartments for the transcribing, binding, and ornamenting of books. A taste for calligraphy and the possession of splendidly-illuminated manuscripts seems to have anticipated in the khalifs, both of Asia and Spain, the taste for statuary and paintings among the later popes of Rome.

Such were the palace and gardens of Zehra, in which Abderrahman III. honored his favorite sultana. The edifice had 1200 columns of Greek, Italian, Spanish, and African marble. Its hall of audience was incrustated with gold and pearls. Through the long corridors of its seraglio black eunuchs silently glided. The ladies of the harem, both wives and concubines, were the most beautiful that could be found. To that establishment alone 6300 persons were attached. The body-guard of the sovereign was composed of 12,000 horsemen, whose cimiers and belts were studded with gold. This was that Abderrahman who, after a glorious reign of fifty years, sat down to count the number of days of unalloyed happiness he had experienced, and could only enumerate fourteen. "Oh man!" exclaimed the plaintive khalif, "put not thy trust in this present world."

No nation has ever excelled the Spanish Arabs in the beauty and costliness of their pleasure-gardens. To them, also, we owe the introduction of very many of our most valuable cultivated fruits, such as the peach. Retaining the love of their ancestors for the cooling effect of water in a hot climate, they spared no pains in the superfluity of fountains, hydraulic works, and artificial lakes in which fish were raised for the table. Into such a lake, attached to the palace of Cordova, many loaves were cast each day to feed the fish. There were also menageries of foreign animals; aviaries of rare birds; manufactories in which skilled workmen, obtained from foreign countries, displayed their art in textures of silk, cotton, linen, and all the miracles of the loom; in jewelry and filigree-work, with which they ministered to the female pride of the sultanas and concubines. Under the shade of cypresses cascades disappeared; among flowering shrubs there were winding walks, bowers of roses, seats cut out of the rock, and crypt-like grottoes hewn in the living stone. Nowhere was ornamental gardening better understood; for not only did the artist try to please the eye as it wandered over the pleasant gradation of vegetable color and form—he also boast-

Libraries and
works of taste.

The court of Ab-
derrahman III.

Social habits
of the Moors.

ed his success in the gratification of the sense of smell by the studied succession of perfumes from beds of flowers.

To these Saracens we are indebted for many of our personal comforts. Religiously cleanly, it was not possible for them to clothe, according to the fashion of the natives of Europe, in a garment unchanged till it dropped to pieces of itself, a loathsome mass of vermin, stench, and rags. No Arab who had been a minister of state, or the associate or antagonist of a sovereign, would have offered such a spectacle as the corpse of Thomas à Becket when his haircloth shirt was removed. They taught us the use of the often-changed and often-washed under-garment of linen or cotton, which still passes among ladies under its old Arabic name. But to cleanliness they were not unwilling to add ornament. Especially among women of the higher classes was the love of finery a passion. Their outer garments were often of silk, embroidered and decorated with gems and woven gold. So fond were the Moorish women of gay colors, and the lustre of chrysolites, hyacinths, emeralds, and sapphires, that it was quaintly said that the interior of any public building in which they were permitted to appear looked like a flower-meadow in the spring besprinkled with rain.

In the midst of all this luxury, which can not be regarded by the historian with disdain, since in the end it produced a most important result in the south of France, the Spanish khalifs, emulating the example of their Asiatic compeers, and in this strongly contrasting with the popes of Rome, were not only the patrons, but the personal cultivators of all the branches of human learning. One of them was himself the author of a work on polite literature in not less than fifty volumes; another wrote a treatise on algebra. When Zaryab the musician came from the East to Spain, the Khalif Abderrahman rode forth to meet him in honor. The College of Music in Cordova was sustained by ample government patronage, and is said to have produced many illustrious professors.

The Arabs never translated into their own tongue the great Greek poets, though they so sedulously collected and translated the Greek philosophers. Their religious sentiments and sedate character caused them to abominate the lewdness of our classical mythology, and to denounce indignantly any connection between the licentious, impure Olympian Jove and the Most High God as an insufferable and unpardonable blasphemy. Haroun Alraschid had gratified his curiosity by causing Homer to be translated into Syriac, but he did not adventure on rendering the great epics into Arabic. Notwithstanding this aversion to our graceful but not unobjectionable ancient poetry, among them originated the Tensons, or poetic disputations, carried afterward to perfection among the Troubadours; from them, also, the Provençals learned to employ the Pyrenees, literary, philosoph-

ical, and military adventurers were perpetually passing; and thus the luxury, the taste, and, above all, the chivalrous gallantry and elegant courtesies of Moorish society found their way from Granada and Cordova to Provence and Languedoc. The French, and German, and English nobles imbibed the Arab admiration of the horse; they learned to pride themselves on skillful riding. Hunting and falconry became their fashionable pastimes; they tried to emulate that Arab skill which had produced the celebrated breed of Andalusian horses. It was a scene of grandeur and gallantry; the pastimes were tilts and tournaments. The refined society of Cordova prided itself in its politeness. A gay contagion also spread from the beautiful Moorish miscreants to their sisters beyond the mountains; the South of France was full of the witcheries of female fascinations, and of dancing to the lute and mandolin. Even in Italy and Sicily the love-song became the favorite composition; and out of these genial but not orthodox beginnings the polite literature of modern Europe arose. The South of France contracts their tastes. The pleasant epidemic spread by degrees along every hill-side and valley. Light literature spreads into Sicily and Italy. In monasteries, voices that had been vowed to celibacy might be heard caroling stanzas of which St. Jerome would hardly have approved; there was many a juicy abbot, who could troll forth in jocular strains, like those of the merry sinners of Malaga and Xeres, the charms of women and wine, though one was forbidden to the Moslem and one to the monk. The sedate graybeards of Cordova had already applied to the supreme judge to have the songs of the Spanish Jew, Abraham Ibn Sahal, prohibited; for there was not a youth, nor woman, nor child in the city who could not repeat them by heart. Their immoral tendency was a public scandal. The light gayety of Spain was reflected in the coarser habits of the northern countries. It was an archdeacon of Oxford who some time afterward sang,

“Mihi sit propositum in tabernâ mori,
 Vinum sit appositum morientis ori,
 Ut dicant, cum venerint angelorum chori;
 ‘Deus sit propitius huic potatori,’” etc.

Even as early as the tenth century, persons having a taste for learning and for elegant amenities found their way into Spain from all adjoining countries; a practice in subsequent years still more indulged in, when it became illustrated by the brilliant success of Gerbert, who, as we have seen, passed from the infidel University of Cordova to the papacy of Rome.

The khalifs of the West carried out the precepts of Ali, the fourth successor of Mohammed, in the patronage of literature. They established libraries in all their chief towns; it is said that The Arabian school system. not less than seventy were in existence. To every mosque was attached a public school, in which the children of the poor were taught to read

and write, and instructed in the precepts of the Koran. For those in easier circumstances there were academies, usually arranged in twenty-five or thirty apartments, each calculated for accommodating four students; the academy being presided over by a rector. In Cordova, Granada, and other great cities, there were universities frequently under the superintendence of Jews; the Mohammedan maxim being that the real learning of a man is of more public importance than any particular religious opinions he may entertain. In this they followed the example of the Asiatic khalif, Haroun Alraschid, who actually conferred the superintendence of his schools on John Masuë, a Nestorian Christian. The Mohammedan liberality was in striking contrast with the intolerance of Europe. Indeed, it may be doubted whether at this time any European nation is sufficiently advanced to follow such an example. In the universities, the professors of polite literature gave lectures upon Arabic classical works; others taught rhetoric, or composition, or mathematics, or astronomy, or other sciences. From these institutions many of the practices observed in our colleges were derived. They held Commencements as we do, at which poems were read and orations delivered in presence of the public. They had also, in addition to these schools of general learning, professional ones, particularly for medicine.

With a pride perhaps not altogether inexcusable, the Arabians boasted of their language as being the most perfect spoken by man. Mohammed himself, when challenged to produce a miracle in proof of the authenticity of his mission, uniformly pointed to the composition of the Koran, its unapproachable excellence vindicating its inspiration. The orthodox Moslems—the Moslems are those who are submissively resigned to the Divine will—are wont to assert that every page of that book is indeed a conspicuous miracle. It is not then surprising that, in the Arabian schools, great attention was paid to the study of language, and that so many celebrated grammarians were produced. By these scholars, dictionaries, similar to those now in use, were composed; their copiousness is indicated by the circumstance that one of them consisted of sixty volumes, the definition of each word being illustrated or sustained by quotations from Arab authors of acknowledged repute. They had also lexicons of Greek, Latin, Hebrew; and cyclopedias such as the Historical Dictionary of Sciences of Mohammed Ibn Abdallah, of Granada. In their highest civilization and luxury they did not forget the amusements of their forefathers—listening to the tale-teller, who never failed to obtain an audience in the midst of Arab tents. Around the evening fires in Spain the wandering literati exercised their wonderful powers of Oriental invention, edifying the eager listeners by such narrations as those that have been translated to us in the Arabian Nights' Entertainments. The more agreeable efforts of the educated were, of course, in conformity to the exam-

Cultivation of grammar, rhetoric, composition.

ple of all the great Oriental khalifs, and sanctified by the practice of the Prophet himself. Their poetical productions embraced all the modern minor forms—satires, odes, elegies, etc.; but they never produced any work in the higher walks of poesy, no epic, no tragedy. Perhaps this was due to their false fashion of valuing the mechanical execution of a work. They were the authors and introducers of rhyme; and such was the luxuriance and abundance of their language, that, in some of their longest poems, the same rhyme is said to have been used alternately from the beginning to the end. Where such mechanical triumphs were popularly prized, it may be supposed that the conception and spirit would be indifferent. Even among the Spanish women there were not a few who, like Velada, Ayesha, Labana, Algasania, achieved reputation in these compositions; and some of them were daughters of khalifs. And this is the more interesting to us, since it was from the Provençal poetry, the direct descendant of these efforts, that European literature arose. Sonnets and romances at last displaced the grimly-orthodox productions of the wearisome and ignorant fathers of the Church.

Defects of their
literature.

If fiction was prized among the Spanish Arabs, history was held in not less esteem. Every khalif had his own historian. The instincts of the race are perpetually peeping out; not only were there historians of the Commanders of the Faithful, but also of celebrated horses and illustrious camels. In connection with history, statistics were cultivated; this having been, it may be said, a necessary study from the first, enforced on the Saracen officers in their assessment of tribute on conquered misbelievers, and subsequently continued as an object of taste. It was, doubtless, a similar necessity, arising from their position, that stamped such a remarkably practical aspect on the science of the Arabs generally. Many of their learned men were travelers and voyagers, constantly moving about for the acquisition or diffusion of knowledge, their acquirements being a passport to them wherever they went, and a sufficient introduction to any of the African or Asiatic courts. They were thus continually brought in contact with men of affairs, soldiers of fortune, statesmen, and became imbued with much of their practical spirit; and hence the singularly romantic character which the biographies of many of these men display, wonderful turns of prosperity, violent deaths. The scope of their literary labors offers a subject well worthy of meditation; it contrasts with the contemporary ignorance of Europe. Some wrote on chronology; some on numismatics; some, now that military eloquence had become objectless, wrote on pulpit oratory; some on agriculture and its allied branches, as the art of irrigation. Not one of the purely mathematical, or mixed, or practical sciences was omitted. Out of a list too long for detailed quotation, I may recall a few names: Assamb, who wrote on topography and statistics, a brave sol-

Their taste
for practical
science.

dier, who was killed in the invasion of France, A.D. 720; Avicenna, the great physician and philosopher, who died A.D. 1037; Averrhoes, of Cordova, the chief commentator on Aristotle, A.D. 1198. It was his intention to unite the doctrines of Aristotle with those of the Koran. To him is imputed the discovery of spots upon the sun. The leading idea of his philosophy was the numerical unity of the souls of mankind, though parted among millions of living individuals. He died at Morocco. Abu Othman wrote on zoology; Alberuni, on gems—he had traveled to India to procure information; Rhazes, Al Abbas, and Al Beithar, on botany—the latter had been in all parts of the world for the purpose of obtaining specimens. Ebn Zoar, better known as Avenzoar, may be looked upon as the authority in Moorish pharmacy. Pharmacopœias were published by the schools, improvements on the old ones of the Nestorians: to them may be traced the introduction of many Arabic words, such as sirup, julep, elixir, still used among our apothecaries. A competent scholar might furnish not only an interesting, but valuable book, founded on the remaining relics of the Arab vocabulary; for, in whatever direction we may look, we meet, in the various pursuits of peace and war, of letters and of science, Saracenic vestiges. Our dictionaries tell us that such is the origin of admiral, alchemy, alcohol, algebra, chemise, cotton, and hundreds of other words. The Saracens commenced the application of chemistry, both to the theory and practice of medicine, in the explanation of the functions of the human body and in the cure of its diseases. Nor was their surgery behind their medicine. Albucasis, of Cordova, shrinks not from the performance of the most formidable operations in his own and in the obstetrical art; the actual cautery and the knife are used without hesitation. He has left us ample descriptions of the surgical instruments then employed; and from him we learn that, in operations on females in which considerations of delicacy intervened, the services of properly instructed women were secured. How different was all this from the state of things in Europe: the Christian peasant, fever-stricken or overtaken by accident, hied to the nearest saint-shrine and expected a miracle; the Spanish Moor relied on the prescription or lancet of his physician, or the bandage and knife of his surgeon.

In mathematics the Arabians acknowledged their indebtedness to two sources, Greek and Indian, but they greatly improved upon both. The Asiatic khalifs had made exertions to procure translations of Euclid, Apollonius, Archimedes, and other Greek geometers. Almaimon, in a letter to the Emperor Theophilus, expressed his desire to visit Constantinople if his duties would have permitted. He requests of him a mathematician to come to Bagdad to impart to him the science which he had learned from the Greeks, pledging his word that he

Their continued inclination to the study of medicine.

Relics of the Arab vocabulary.

Their medicine and surgery.

Liberality of the Asiatic khalifs.

would restore him quickly and safely again. "Do not," says the high-minded khalif, "let diversity of religion or of country cause you to refuse my request. Do what friendship would concede to a friend. In return, I offer you a hundred weight of gold, a perpetual alliance and peace." True to the instincts of his race and the traditions of his city, the Byzantine sourly and insolently refused the request, saying that "the learning which had illustrated the Roman name should never be imparted to a barbarian."

From the Hindus the Arabs learned arithmetic, especially that valuable invention termed by us the Arabic numerals, but honorably ascribed by them to its proper source, under the designation of "Indian numerals." They also entitled their treatises on the subject "Systems of Indian Arithmetic." This admirable notation by nine digits and cipher occasioned a complete revolution in arithmetical computations. As in the case of so many other things, the Arab impress is upon it; our word cipher, and its derivatives, ciphering, etc., recall the Arabic word *tsaphara* or *ciphra*, the name for the 0, and meaning that which is blank or void. Mohammed Ben Musa, said to be the earliest of the Saracen authors on algebra, and who made the great improvement of substituting sines for chords in trigonometry, wrote also on this Indian system. He lived at the end of the ninth century; before the end of the tenth it was in common use among the African and Spanish mathematicians. Ebn Junis, A.D. 1008, used it in his astronomical works. From Spain it passed into Italy, its singular advantage in commercial computation causing it to be eagerly adopted in the great trading cities. We still use the word algorithm in reference to calculations. The study of algebra was intently cultivated among the Arabs, who gave it the name it bears. Ben Musa, just referred to, was the inventor of the common method of solving quadratic equations. In the application of mathematics to astronomy and physics they had been long distinguished. Almaimon had determined with considerable accuracy the obliquity of the ecliptic. His result, with those of some other Saracen astronomers, is as follows:

A.D. 830. Almaimon	23° 35' 52"
" 879. Albategnius, at Aracte	23° 35' 00
" 987. Aboul Wefa, at Bagdad	23° 35' 00
" 995. Aboul Rihan, with a quadrant of 25 feet radius	23° 35' 00
" 1080. Arzachael	23° 34' 00

Almaimon had also ascertained the size of the earth from the measurement of a degree on the shore of the Red Sea—an operation implying true ideas of its form, and in singular contrast with the doctrine of Constantinople and Rome. While the latter was asserting, in all its absurdity, the flatness of the earth, the Spanish Moors were teaching geography in their common schools from globes. In Africa, there was still pre-

served, with almost religious reverence, in the library at Cairo, one of brass, reputed to have belonged to the great astronomer Ptolemy. Al Idrisi made one of silver for Roger II., of Sicily; and Gerbert used one which he had brought from Cordova in the school he established at Rheims. It cost a struggle of several centuries, illustrated by some martyrdoms, before the dictum of Lactantius and Augustine could be overthrown. Among problems of interest that were solved may be mentioned the determination of the length of the year by Albategnius and Thebit Ben Corrah; and increased accuracy was given to the correction of astronomical observations by Alhazen's great discovery of atmospheric refraction. Among the astronomers, some composed tables; some wrote on the measure of time; some on the improvement of clocks, for which purpose they were the first to apply the pendulum; some on instruments, as the astrolabe. The introduction of astronomy into Christian Europe has been attributed to the translation of the works of Mohammed Fargani. In Europe, also, the Arabs were the first to build observatories; the Giralda, or tower of Seville, was erected under the superintendence of Geber, the mathematician, A.D. 1196, for that purpose. Its fate was not a little characteristic. After the expulsion of the Moors it was turned into a belfry, the Spaniards not knowing what else to do with it.

I have to deplore the systematic manner in which the literature of Europe tries to hide its obligations to them. Europe has contrived to put out of sight our scientific obligations to the Mohammedans. Surely they can not be much longer hidden. Injustice founded on religious rancor and national conceit can not be perpetuated forever. What should the modern astronomer say when, remembering the contemporary barbarism of Europe, he finds the Arab Abul Hassan speaking of tubes, to the extremities of which ocular and object diopters, perhaps sights, were attached, as used at Meragha? what when he reads of the attempts of Abderrahman Sa'adi at improving the photometry of the stars? Are the astronomical tables of Ebn Junis (A.D. 1008), called the Hakemite tables, or the Ilkanic tables of Nasser Eddin Tasi, constructed at the great observatory just mentioned, Meragha, near Tauris, A.D. 1259, or the measurement of time by pendulum oscillations, and the methods of correcting astronomical tables by systematic observations—are such things worthless indications of the mental state? The Arab has left his intellectual impress on Europe, as, before long, Christendom will have to confess; he has indelibly written it on the heavens, as any one may see who reads the names of the stars on a common celestial globe.

Our obligations to the Spaniards in the arts of life are even more marked than in the arts of science, perhaps only because they were better prepared to take advantage of the example of skill-

Improvements in
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ful agriculture, the practice of which was regulated by a code of laws. Not only did they attend to the cultivation of plants, introducing very many new ones; they likewise paid great attention to the breeding of cattle, especially sheep and the horse. To them we owe the introduction of the great products, rice, sugar, cotton, and also, as we have previously observed, nearly all the fine garden and orchard fruits, together with many less important plants, as spinach and saffron. To them Spain owes the culture of silk; they gave to Xeres and Malaga their celebrity for making wine. They introduced the Egyptian system of irrigation by flood-gates, wheels, and pumps. They also promoted many important branches of industry; improved the manufacture of textile fabrics, earthenware, iron, steel; the Toledo sword-blades were every where prized for their temper. The Arabs, on their expulsion from Spain, carried the manufacture of a kind of leather, in which they were acknowledged to excel, to Morocco, from which country the leather itself has now taken its name. They also introduced inventions of a more ominous kind—gunpowder and artillery. The cannon they used appeared to have been made of wrought iron. But perhaps they more than compensated for these evil contrivances by the introduction of the mariner's compass.

The mention of the mariner's compass might lead us correctly to infer that the Spanish Arabs were interested in commercial pur- Their commerce. suits, a conclusion to which we should also come when we consider the revenues of some of their khalifs. That of Abderrahman III. is stated at five and a half millions sterling—a vast sum if considered by its modern equivalent, and far more than could possibly be raised by taxes on the produce of the soil. It probably exceeded the entire revenue of all the sovereigns of Christendom taken together. From Barcelona and other ports an immense trade with the Levant was maintained, but it was mainly in the hands of the Jews, who, from the first invasion of Spain by Musa, had ever been the firm allies and collaborators of the Arabs. Together they had participated in the dangers of the invasion; together they had shared its boundless success; together they had held in irreverent derision, nay, even in contempt, the woman-worshipers and polytheistic savages beyond the Pyrenees—as they mirthfully called those whose long-delayed vengeance they were in the end to feel; together they were expelled. Against such Jews as lingered behind the hideous persecutions of the Inquisition were directed. But in the days of their prosperity they maintained a merchant marine of more than a thousand ships. They had factories and consuls on the Tanaïs. With Constantinople alone they maintained a great trade; it ramified from the Black Sea and East Mediterranean into the interior of Asia; it reached the ports of India and China, and extended along the African coast as far as Madagascar. Even in these commercial affairs the singular genius of the Jew and Arab shine forth. In the midst of the tenth

century, when Europe was about in the same condition that Caffraria is now, enlightened Moors, like Abul Cassem, were writing treatises on the principles of trade and commerce. As on so many other occasions, on these affairs they have left their traces. The smallest weight they used in trade was the grain of barley, four of which were equal to one sweet pea, called in Arabic carat. We still use the grain as our unit of weight, and still speak of gold as being so many carats fine.

Such were the Khalifs of the West; such their splendor, their luxury, their knowledge; such some of the obligations we are under to them—obligations which Christian Europe, with singular insincerity, has ever been fain to hide. The cry against the misbeliever has long outlived the Crusades. Considering the enchanting country over which they ruled, it was not without reason that they caused to be engraven on the public seal, "The servant of the Merciful rests contented in the decrees of God." What more, indeed, could Paradise give them? But, considering also the evil end of all this happiness and pomp, this learning, liberality, and wealth, we may well appreciate the solemn truth which these monarchs, in their day of pride and power, grandly wrote in the beautiful mosaics on their palace walls, an ever-recurring monition to him who owes dominion to the sword, "There is no conqueror but God."

The value of a philosophical or political system may be determined by its fruits. On this principle I examined in Chapter XII. the Italian system, estimating its religious merit from the biographies of the popes, which afford the proper criterion. In like manner, the intellectual state of the Mohammedan nations at successive epochs may be as-
Examination of Mohammedan science. certain from what is its proper criterion, the contemporaneous scientific manifestation.

At the time when the Moorish influences in Spain began to exert a pressure on the Italian system, there were several scientific writers, fragments of whose works have descended to us. As an architect may judge of the skill of the ancient Egyptians in his art from a study of the Pyramids, so from these relics of Saracenic learning we may demonstrate the intellectual state of the Mohammedan people, though much of their work has been lost and more has been purposely destroyed.

Among such writers is Alhazen; his date was about A.D. 1100. It appears that he resided both in Spain and Egypt, but the details of his biography are very confused. Through his optical works, which
Review of the works of Alhazen. have been translated into Latin, he is best known to Europe. He was the first to correct the Greek misconception as to the nature of vision, showing that the rays of light come from external objects to the
He corrects the theory of vision. eye, and do not issue forth from the eye and impinge on external things, as, up to his time, had been supposed. His explanation does not depend upon mere hypothesis or supposition, but is

plainly based upon anatomical investigation as well as on geometrical discussion. He determines that the retina is the seat of vision, and that impressions made by light upon it are conveyed along the optic nerve to the brain. Though it might not be convenient, at the time when Alhazen lived, to make such an acknowledgment, no one could come to these conclusions, nor, indeed, know any thing about these facts, unless he had been engaged in the forbidden practice of dissection. With felicity he explains that we see single when we use both eyes, because of the formation of the visual images on symmetrical portions of the two retinas. To the modern physiologist the mere mention of such things is as significant as the occurrence of an arch in the interior of the pyramid is to the architect. But Alhazen shows that our sense of sight is by no means a reliable guide, and that there are illusions arising from the course which the rays of light may take when they suffer refraction or reflection. It is in the discussion of one of these physical problems that his scientific greatness truly shines forth. He is perfectly aware that the atmosphere decreases in density with increase of height; and from that consideration he shows that a ray of light, entering it obliquely, follows a curvilinear path which is concave toward the earth; and that, since the mind refers the position of an object to the direction in which the ray of light from it enters the eye, the result must be an illusion as respects the starry bodies; they appear to us, to use the Arabic term, nearer to the *zenith* than they actually are, and not in their true place. We see them in the direction of the tangent to the curve of refraction as it reaches the eye. Hence also he shows that we actually see the stars, and the sun, and the moon before they have risen and after they have set—a wonderful illusion. He shows that in its passage through the air the curvature of a ray increases with the increasing density, and that its path does not depend on vapors that chance to be present, but on the variation of density in the medium. To this refraction he truly refers the shortening, in their vertical diameter, of the horizontal sun and moon; to its variations he imputes the twinkling of the fixed stars. The apparent increase of size of the former bodies when they are in the horizon he refers to a mental deception, arising from the presence of intervening terrestrial objects. He shows that the effect of refraction is to shorten the duration of night and darkness by prolonging the visibility of the sun, and considering the reflecting action of the air, he deduces that beautiful explanation of the nature of twilight—the light that we perceive before the rising and after the setting of the sun—which we accept at the present time as true. With extraordinary acuteness, he applies the principles with which he is dealing to the determination of the height of the atmosphere, deciding that its limit is nearly 58½ miles.

Determines the function of the retina.

Explains single vision.

Traces the course of a ray of light through the air.

Astronomical refraction.

The horizontal sun and moon.

Explains the twilight.

Determines the height of the atmosphere.

All this is very grand. Shall we compare it with the contemporaneous monk miracles and monkish philosophy of Europe? It would make a profound impression if communicated for the first time to a scientific society in our own age. Nor perhaps does his merit end here. If the Book of the Balance of Wisdom, for a translation of which we are indebted to M. Khanikoff, the Russian consul-general at Tabriz, is the production of Alhazen, as there seems to be internal proof, it offers us evidence of a singular clearness in mechanical conception for which we should scarcely have been prepared, and, if it be not his, at all events it indisputably shows the scientific acquirements of his age. In that book is plainly set forth the connection between the weight of the atmosphere and its increasing density. The weight of the atmosphere was therefore understood before Torricelli. He shows that a body will weigh differently in a rare and in a dense atmosphere; that its loss of weight will be greater in proportion as the air is more dense. He considers the force with which plunged bodies will rise through heavier media in which they are immersed, and discusses the submergence of floating bodies, as ships upon the sea. He understands the doctrine of the centre of gravity. He applies it to the investigation of balances and steelyards, showing the relations between the centre of gravity and the centre of suspension—when those instruments will set and when they will vibrate. He recognizes gravity as a force; asserts that it diminishes with the distance; but falls into the mistake that the diminution is as the distance, and not as its square. He considers gravity as terrestrial, and fails to perceive that it is universal—that was reserved for Newton. He knows correctly the relation between the velocities, spaces, and times of falling bodies, and has very distinct ideas of capillary attraction. He improves the construction of that old Alexandrian invention, the hydrometer—the instrument which, in a letter to his fair but pagan friend Hypatia, the good Bishop of Ptolemais, Synesius, six hundred years before, requests her to have made for him in Alexandria, as he wishes to try the wines he is using, his health being a little delicate. The determinations of the densities of bodies, as given by Alhazen, approach very closely to our own; in the case of mercury they are even more exact than some of those of the last century. I join, as, doubtless, all natural philosophers will do, in the pious prayer of Alhazen, that, in the day of judgment, the All-Merciful will take pity on the soul of Abur-Raihan, because he was the first of the race of men to construct a table of specific gravities; and I will add Alhazen's name thereto, for he was the first to trace the curvilinear path of a ray of light through the air. Though more than seven centuries part him from our times, the physiologists of this age may accept him as their compeer, since he received and defended the doctrine, now forcing its way, of the progressive de-

The weight
of the air.

Principles of
hydrostatics.

Theory of the
balance.

Gravity; capil-
lary attraction;
the hydrometer.

Tables of spe-
cific gravities.

velopment of animal forms. He upheld the affirmation of those who said that man, in his progress, passes through a definite succession of states; not, however, "that he was once a bull, and was then changed to an ass, and afterward into a horse, and after that into an ape, and finally became a man." This, he says, is only a misrepresentation by "common people" of what is really meant. The "common people" who withstood Albazen have representatives among us, themselves the only example in the Fauna of the world of that non-development which they so loudly affirm. At the best they are only passing through some of the earlier forms of that series of transmutations to which the devout Mohammedan in the above quotation alludes.

The Arabians, with all this physical knowledge, do not appear to have been in possession of the thermometer, though they knew the great importance of temperature measures, employing the areometer for that purpose. They had detected the variation in density of liquids by heat, but not the variation in volume. In their measures of time they were more successful; they had several kinds of clepsydras. A balance clepsydra is described in the work from which I am quoting. But it was their great astronomer, Ebn Junis, who accomplished the most valuable of all chronometric improvements. He first applied the pendulum to the measure of time. Laplace, in the fifth note to his *Systeme du Monde*, avails himself of the observations of this philosopher, with those of Albategnius and other Arabians, as incontestible proof of the diminution of the eccentricity of the earth's orbit. He states, moreover, that the observation of Ebn Junis of the obliquity of the ecliptic, properly corrected for parallax and refraction, gives for the year A.D. 1000 a result closely approaching to the theoretical. He also mentions another observation of Ebn Junis, October 31, A.D. 1007, as of much importance in reference to the great inequalities of Jupiter and Saturn. I have already remarked that, in the writings of this great Arabian, the Arabic numerals and our common arithmetical processes are currently used. From Africa and Spain they passed into Italy, finding ready acceptance among commercial men, who recognized at once their value, and, as William of Malmesbury says, being a wonderful relief to the "sweating calculators;" an epithet of which the correctness will soon appear to any one who will try to do a common multiplication or division sum by the aid of the old Roman numerals. It is said that Gerbert—Pope Sylvester—was the first to introduce a knowledge of them into Europe; he had learned them at the Mohammedan university of Cordova. It is in allusion to the cipher, which follows the 9, but which, added to any of the other digits, increases by tenfold its power, that, in a letter to his patron, the Emperor Otho III., with humility he playfully but truly says, "I am like the last of all the numbers."

The theory of development of organisms.

The pendulum clock.

Astronomical works of Ebn Junis.

The Arabic numerals.

The overthrow of the Roman by the Arabic numerals foreshadowed the result of a far more important—a political—contest between those rival names. But, before showing how the Arabian intellect, pressed upon Rome, and the convulsive struggles of desperation which Rome made to resist it, I must for a moment consider the former under another point of view, and speak of Saracen philosophy. And here Algazzali shall be my guide. He was born A.D. 1058.

Let us hear him speak for himself. He is relating his attempt to detach himself from the opinions which he had imbibed in his childhood: The writings of Algazzali. “I said to myself, ‘My aim is simply to know the truth of things; consequently, it is indispensable for me to ascertain what is knowledge.’ Now it was evident to me that certain knowledge must be that which explains the object to be known in such a manner that no doubt can remain, so that in future all error and conjecture respecting it must be impossible. Not only would the understanding then need no efforts to be convinced of certitude, but security against error is in such close connection with knowledge, that, even were an apparent proof of falsehood to be brought forward, it would cause no doubt, because no suspicion of error would be possible. Thus, when I have acknowledged ten to be more than three, if any one were to say, ‘On the contrary, three is more than ten, and, to prove the truth of my assertion, I will change this rod into a serpent,’ and if he were to change it, my conviction of his error would remain unshaken. His manoeuvre would only produce in me admiration for his ability. I should not doubt my own knowledge.

“Then was I convinced that knowledge which I did not possess in this manner, and respecting which I had not this certainty, could inspire me with neither confidence nor assurance; and no knowledge without assurance deserves the name of knowledge.

“Having examined the state of my own knowledge, I found it divested of all that could be said to have these qualities, unless perceptions of the senses and irrefragable principles were to be considered such. I then said to myself, ‘Now, having fallen into this despair, the only hope of acquiring incontestable convictions is by the perceptions of the senses and by necessary truths.’ Their evidence seemed to me to be indubitable. I began, however, to examine the objects of sensation and speculation, to see if they possibly could admit of doubt. Then doubts crowded upon me in such numbers that my incertitude became complete. Whence results the confidence I have in sensible things? The strongest of all our senses is sight; and yet, looking at a shadow, and perceiving it to be fixed and immovable, we judge it to be deprived of movement; nevertheless, experience teaches us that, when we return to the same place an hour after, the shadow is displaced, for it does not vanish suddenly, but gradually, little by little, so as never to be at rest.

If we look at the stars, they seem to be as small as money-pieces; but mathematical proofs convince us that they are larger than the earth. These and other things are judged by the senses, but rejected by reason as false. I abandoned the senses, therefore, having seen all my confidence in their truth shaken.

"Perhaps," said I, 'there is no assurance but in the notions of reason, that is to say, first principles, as that ten is more than three; the same thing can not have been created and yet have existed from all eternity; to exist and not to exist at the same time is impossible.'

"Upon this the senses replied, 'What assurance have you that your confidence in reason is not of the same nature as your confidence in us? When you relied on us, reason stepped in and gave us the lie; had not reason been there, you would have continued to rely on us. Well, may there not exist some other judge superior to reason, who, if he appeared, would refute the judgments of reason in the same way that reason refuted us? The non-appearance of such a judge is no proof of his non-existence.'

Unreliability
of reason.

"I strove in vain to answer the objection, and my difficulties increased when I came to reflect on sleep. I said to myself, 'During sleep, you give to visions a reality and consistence, and you have no suspicion of their untruth. On awakening, you are made aware that they were nothing but visions. What assurance have you that all you feel and know when you are awake does actually exist? It is all true as respects your condition at that moment; but it is nevertheless possible that another condition should present itself which should be to your awakened state that which to your awakened state is now to you sleep; so that, as respects this higher condition, your waking is but sleep.'

The nature
of dreams.

It would not be possible to find in any European work a clearer statement of the skepticism to which philosophy leads us than what is thus given by this Arabian. Indeed, it is not possible to put the argument in a more effective way. His perspicuity is in singular contrast with the obscurity of many metaphysical writers.

"Reflecting on my situation, I found myself bound to this world by a thousand ties, temptations assailing me on all sides. I then examined my actions. The best were those relating to instruction and education, and even there I saw myself given up to unimportant sciences, all useless in another world. Reflecting on the aim of my teaching, I found it was not pure in the sight of the Lord. I saw that all my efforts were directed toward the acquisition of glory to myself. Having, therefore, distributed my wealth, I left Bagdad and retired into Syria, where I remained two years in solitary struggle with my soul, combating my passions, and exercising myself in the purification of my heart and in preparation for the other world."

Intellectual
despair.

This is a very beautiful picture of the mental struggles and the actions of a truthful and earnest man. In all this the Christian philosopher can sympathize with the devout Mohammedan. After all, they are not very far apart. Algazzali is not the only one to whom such thoughts have occurred, but he has found words to tell his experience better than any other man. And what is the conclusion at which he arrives? The life of man, he says, is marked by three stages: Algazzali's ages of man. "the first, or infantile stage, is that of pure sensation; the second, which begins at the age of seven, is that of understanding; the third is that of reason, by means of which the intellect perceives the necessary, the possible, the absolute, and all those higher objects which transcend the understanding. But after this there is a fourth stage, when another eye is opened, by which man perceives things hidden from others—perceives all that will be—perceives the things that escape the perceptions of reason, as the objects of reason escape the understanding, and as the objects of the understanding escape the sensitive faculty. This is prophetism." Algazzali thus finds a philosophical basis for the rule of life, and reconciles religion and philosophy.

And now I have to turn from Arabian civilized life, its science, its philosophy, to another, a repulsive state of things. With reluctance I come back to the Italian system, defiling the holy name of religion with its intrigues, its bloodshed, its oppression of human thought, its hatred of intellectual advancement. Especially I have now to direct attention Renewal of the operation of Mohammedan influences. to two countries, the scenes of important events—countries in which the Mohammedan influences began to take effect and to press upon Rome. These are the South of France and Sicily.

Innocent III. had been elected pope at the early age of thirty-seven years, A.D. 1198. The papal power had reached its culminating point. The weapons of the Church had attained their utmost force. In Italy, in Germany, in France and England, interdicts and excommunications vindicated the pontifical authority, as in the cases of the Duke of Ravenna, the Emperor Otho, Philip Augustus of France, King John of England. In each of these cases it was not for the sake of sustaining great moral principles or the rights of humanity that the thunder was launched—it was in behalf of temporary political interests; interests that, in Germany, were sustained at the cost of a long war, and cemented by assassination; in France, strengthened by the well-tried device Interference of Innocent III. in France. of an intervention in a matrimonial broil—the domestic quarrel of the king and queen about Agnes of Meran. "Ah! happy Saladin!" said the insulted Philip, when his kingdom was put under interdict; "he has no pope above him. I too will turn Mohammedan."

So, likewise, in Spain, Innocent interfered in the matrimonial life of the King of Leon. The venality of the papal government

was in every direction felt. Portugal had already been ad-
 vanced to the dignity of a kingdom on payment of an annual
 tribute to Rome. The King of Aragon held his kingdom as feudatory
 to the pope.

In Spain and
Portugal.

In England, Innocent's interference assumed a different aspect. He attempted to assert his control over the Church in spite of the king, and put the nation under interdict because John would not permit Stephen Langton to be Archbishop of Canterbury. It was utterly impossible that affairs could go on with such an empire within an empire. For his contumacy, John was excommunicated; but, base as he was, he defied his punishment for four years. Hereupon his subjects were released from their allegiance, and his kingdom offered to any one who would conquer it. In his extremity, the King of England is said to have sent a messenger to the Emir Al Mouenim, offering to become a Mohammedan. The religious sentiment was then no higher in him than it was, under a like provocation, in the King of France, whose thoughts turned in the same direction. But, pressed irresistibly by Innocent, John was compelled to surrender his realm, agreeing to pay to the pope, in addition to Peter's pence, 1000 marks a year as a token of vassalage. When the prelates whom he had refused or exiled returned, he was compelled to receive them on his knees—humiliations which aroused the indignation of the stout English barons, and gave strength to those movements which ended in extorting Magna Charta. Never, however, was Innocent more mistaken than in the character of Stephen Langton. John had, a second time, formally surrendered his realm to the pope, and done homage to the legate for it; but Stephen Langton was the first—at a meeting of the chiefs of the revolt against the king, held in London, August 25th, 1213—to suggest that they should demand a renewal of the charter of Henry I. From this suggestion Magna Charta originated. Among the miracles of the age, he was the greatest miracle of all; his patriotism was stronger than his profession. The wrath of the pontiff knew no bounds when he learned that the Great Charter had been conceded. In his bull, he denounced it as base and ignominious; he anathematized the king if he observed it; he declared it null and void. It was not the policy of the Roman court to permit so much as the beginnings of such freedom. The appointment of Simon Langton to the archbishopric of York was annulled. One De Gray was substituted for him. It illustrated the simony into which the papal government had fallen, that De Gray had become, in these transactions, indebted to Rome \$50,000. In fact, through the operation of the Crusades, all Europe was tributary to the pope. He had his fiscal agents in every metropolis; his traveling ones wandering in all direc-
The drain of
money from
that country.
 tions, in every country, raising revenue by the sale of dispensations for all kinds of offenses, real and fictitious—money for the sale of appoint-

In England; de-
nounces Magna
Charta.

ments, high and low—a steady drain of money from every realm. Fifty years after the time of which we are speaking, Robert Grostete, the Bishop of Lincoln and friend of Roger Bacon, caused to be ascertained the amount received by foreign ecclesiastics in England. He found it to be thrice the income of the king himself. This was on the occasion of Innocent IV. demanding provision to be made for three hundred additional Italian clergy by the Church of England, and that one of his nephews—a mere boy—should have a stall in Lincoln cathedral.

While thus Innocent III. was interfering and intriguing with every court, and laying every people under tribute, he did not for a moment permit his attention to be diverted from the Crusades, the singular advantages of which to the papacy had now been fully discovered. They had given to the pope a suzerainty in Europe, the control of its military as well as its monetary resources. Not that a man like Innocent could permit himself to be deluded by any hopes of eventual success. The Crusades must inevitably prove, so far as their avowed object was concerned, a failure. The Christian inhabitants of Palestine were degraded and demoralized beyond description. Their ranks were thinned by apostasy to Mohammedanism. In Europe, not only had the laity begun to discover that the money provided for the wars in the Holy Land was diverted from its purpose, and, in some inexplicable manner, found its way into Italy—even the clergy could not conceal their suspicions that the proclamation of a crusade was merely the preparation for a swindle. Nevertheless, Innocent pressed forward his schemes, goading on Christendom by throwing into its face the taunts of the Saracens. “Where,” they say, “is your God, who can not deliver you out of our hands? Behold! we have defiled your sanctuaries; we have stretched forth our arm; we have taken at the first assault, we hold in despite of you, those your desirable places, where your superstition had its beginning. Where is your God? Let him arise and protect you and himself.” “If thou be the Son of God, save thyself if thou canst; redeem the land of thy birth from our hands. Restore thy cross, that we have taken, to the worshipers of the Cross.” With great difficulty, however, Innocent succeeded in preparing the fourth crusade, A.D. 1202. The Venetians consented to furnish a fleet of transports. But the expedition was quickly diverted from its true purpose; the Venetians employing the Crusaders for the capture of Zara from the King of Hungary. Still worse, and shameful to be said—partly from the lust of plunder, and partly through ecclesiastical machinations—it again turned aside for an attack upon Constantinople, and took that city by storm, A.D. 1204, thereby establishing Latin Christianity in the Eastern empire, but, alas! with bloodshed, rape, and fire. On the more houses were burned than could be found in cities in France. Even Chris-

Goading of Europe into a new crusade.

The crusade is used for the seizure of Constantinople.

tian historians compare with shame the storming of Constantinople by the Catholics with the capture of Jerusalem ^{Sack of that city by the Catholics.} by Saladin. Pope Innocent himself was compelled to protest against enormities that had outrun his intentions. He says: "They practiced fornications, incests, adulteries in the sight of men. They abandoned matrons and virgins, consecrated to God, to the lewdness of grooms. They lifted their hands against the treasures of the churches—what is more heinous, the very consecrated vessels—tearing the tablets of silver from the very altars, breaking in pieces the most sacred things, carrying off crosses and relics." In St. Sophia, the silver was stripped from the pulpit; an exquisite and highly-prized table of oblation was broken in pieces; the sacred chalices were turned into drinking-cups; the gold fringe was ripped off the veil of the sanctuary. Asses and horses were led into the churches to carry off the spoil. A prostitute mounted the patriarch's throne, and sang, with indecent gestures, a ribald song. The tombs of the emperors were rifled; and the Byzantines saw, at once with amazement and anguish, the corpse of Justinian—which even decay and putrefaction had for six centuries spared in his tomb—exposed to the violation of a mob. It had been understood among those who instigated these atrocious proceedings that the relics were to be brought into a common stock and equitably divided among the conquerors; but each ecclesiastic seized and secreted whatever he could. The idolatrous state of the Eastern Church is illustrated by some of these relics. Thus the Abbot Martin obtained for his monastery in Alsace the following inestimable articles: 1. A spot of the blood of our Savior; 2. A piece of the true cross; 3. The arm of the Apostle James; 4. Part of the skeleton of John the Baptist; 5.—I hesitate to write such blasphemy—"A bottle of the milk of the Mother of God!" In contrast with the treasures thus acquired may be set relics of a very different kind, the remains of ancient art which they destroyed: ^{The relics found there, and works of art destroyed.} 1. The bronze charioteers from the Hippodrome; 2. The she-wolf suckling Romulus and Remus; 3. A group of a Sphinx, river-horse, and crocodile; 4. An eagle tearing a serpent; 5. An ass and his driver, originally cast by Augustus in memory of the victory of Actium; 6. A Bellerophon and Pegasus; 7. A bronze obelisk; 8. Paris presenting the apple to Venus; 9. An exquisite statue of Helen; 10. The Hercules of Lysippus; 11. A Juno, formerly taken from the temple at Samos. The bronzes were melted into coin, and thousands of manuscripts and parchments were burned. From that time the works of many ancient authors disappeared altogether.

With well-dissembled regret, Innocent took the new order of things in the city of Constantinople under his protection. The Bishop of Rome at last appointed the Bishop of Constantinople. The acknowledgment of papal supremacy was complete. Rome and Venice divided between

The pope and the doge divide the spoil. them the ill-gotten gains of their undertaking. If any thing had been wanting to open the eyes of Europe, surely what had thus occurred should have been enough. The pope and the doge—the trader in human credulity and the trader of the Adriatic—had shared the spoils of a crusade meant by religious men for the relief of the Holy Land. The bronze horses, once brought by Augustus from Alexandria, after his victory over Antony, and transferred from Rome to Constantinople by its founder, were set before the Church of St. Mark. They were the outward and visible sign of a less obvious event that was taking place. For to Venice was brought a residue of the literary treasures that had escaped the fire and the destroyer; and while her comrades in the outrage were satisfied, in their ignorance, with fictitious relics, she took possession of the poor remnant of the glorious works of art, of letters, and of science. Through these was hastened the intellectual progress of the West.

Works of art carried to Venice. So fell Constantinople, and fell by the parricidal hands of Christians. The days of retribution for the curse she had inflicted on Western civilization were now approaching. In these events she received a first installment of her punishment. Three hundred years before, the historian Luitprand, who was sent by the Emperor Otho I. to the court of Nicephorus Phocas, says of her, speaking as an eye-witness, "That city, once so wealthy, so flourishing, is now famished, lying, perjured, deceitful, rapacious, greedy, niggardly, vainglorious;" and since Luitprand's time she had been pursuing a downward career. It might have been expected that the concentration of all the literary and scientific treasures of the Roman empire in Constantinople should have given rise to great mental vigor—that to Europe she would have been a brilliant focus of light. But when the works on jurisprudence by Tribonian, under Justinian, have been mentioned, what is there that remains? There is Stephanus, the grammarian, who wrote a dictionary, and Procopius, the historian, who was secretary to Belisarius in his campaigns. There is then a long interval almost without a literary name, to Theophylact Simocatta, and to the Ladder of Paradise of John Climacus. The mental excitement of the iconoclastic dispute presents us with John of Damascus; and the ninth century, the Myriobiblion and Nomacanon of Photius. Then follows Constantine Porphyrogenitus, vainly and voluminously composing; and Basil II. doubtless truly expresses the opinion of the time, as he certainly does the verdict of posterity as regards the works of his country, when he says that learning is useless and unprofitable lumber. The Alexiad of Anna Comnena, and the history of Byzantine affairs by Nicephorus Bryennius, hardly redeem their age. This barrenness and worthlessness was the effect of the system introduced by Constantine the Great. The long line of emperors had been consistent in one policy—the repression or expulsion

The punishment of Constantinople.

The literary worthlessness of that city.

of philosophy; and yet it is the uniform testimony of those ages that the Eastern convents were full of secret Platonism—that, in stealth, the doctrines of Plato were treasured up in the cells of Asiatic monks. The Byzantines had possessed in art and letters all the best models in the world, yet in a thousand years they never produced one original. Millions of Greeks never advanced one step in philosophy or science—never made a single practical discovery, composed no poem, no tragedy worth perusal. The spirit of their superficial literature—if literature it can be called—is well shadowed forth in the story of the patriarch Photius, who composed at Bagdad, at a distance from his library, an analysis of 280 works he had formerly read. The final age of the city was signalized by the Baarlamite controversy respecting the mysterious light of Mount Thabor—the possibility of producing a beatific vision, and of demonstrating, by an unceasing inspection of the navel for days and nights together, the existence of two eternal principles, a visible and an invisible God!

What was it that produced this barrenness, this intellectual degradation in Constantinople? The tyranny of Theology over Cause of all this, Thought.

But with the capture of Constantinople by the Latins other important events were occurring. Every where an intolerance of papal power was engendering. The monasteries became infected, and even from the holy lips of monks words of ominous import might be heard. In the South of France the intellectual insurrection first took form. There the influence of the Mohammedans and Jews beyond the Pyrenees began to manifest itself. The songs of gallantry; tensons, or poetical contests of minstrels; satires of gay defiance; rivalry in praise of the ladies; lays, serenades, pastourelles, rondes, such as had already drawn forth the condemnation of the sedate Mussulmen of Cordova, had gradually spread through Spain and found a congenial welcome in France. The Troubadours were singing in the langue d'Oc in the south, and the Trouvères in the langue d'Oil in the north. Thence the merry epidemic spread to Sicily and Italy. Men felt that a relief from the grim ecclesiastic was coming. Kings, dukes, counts, knights, prided themselves on their gentle prowess. The humbler minstrels found patronage among ladies and at courts; sly satires against the priests, and amorous ditties, secured them a welcome among the populace. When the poet was deficient in voice, a jongleur went with him to sing; and often there was added the pleasant accompaniment of a musical instrument. The Provençal or langue d'Oc was thus widely diffused; it served the purposes of those unacquainted with Latin, and gave the Italians a model for thought and versification, to Europe the germs of many of its future melodies. While the young were singing, the old were thinking; while the gay were car-

ried away with romance; the grave were falling into heresy. But, true to her instincts and traditions, the Church had shown her determination to deal rigorously with all such movements. Already, A.D. 1134, Peter de Brueys had been burned in Languedoc for denying infant baptism, the worship of the cross, and transubstantiation. Already Henry the Deacon, the disciple of Peter, had been disposed of by St. Bernard. Already the valleys of Piedmont were full of Waldenses. Already the Poor Men of Lyons were proclaiming the portentous doctrine that the sanctity of a priest lay not in his office, but in the manner of his life. They denounced the wealth of the Church, and the intermingling of bishops in bloodshed and war; they denied transubstantiation, invocation of saints, purgatory, and especially directed their hatred against the sale of indulgences for sin. The rich cities of Languedoc were full of misbelievers. They were given up to poetry, music, dancing. Their people, numbers of whom had been in the Crusades or in Spain, had seen the Saracens. Admiration had taken the place of detestation. Amid shouts of laughter, the Troubadours went through the land, wagging their heads, and slyly winking their eyes, and singing derisive songs about the amours of the priests, and amply earning denunciations as lewd blasphemers and atheists. Here was a state of things demanding the attention of Innocent. The methods he took for its correction have handed his name down to the mal-
Innocent III. alarmed at the spread of heresy. edictions of posterity. He dispatched a missive to the Count of Toulouse—who already lay under excommunication for alleged intermeddling with the rights of the clergy—charging him with harboring heretics and giving offices of emolument to Jews. The count was a man of gay life, having, in emulation of some of his neighbors across the Pyrenees, not less than three wives. His offenses of that kind were, however, eclipsed by those with which he was now formally charged. It chanced that, in the ensuing disputes, the pope's legate was murdered. There is no reason to believe that Raymond was concerned in the crime. But the indignant pope held him responsible; instantly ordered to be published in all directions his excommunication, and called upon Western Christendom to engage in a crusade against him, offering, to whoever chose to take them, the wealth and possessions of the offender. So thoroughly was he seconded by the preaching of the monks, that half a million of men, it is affirmed, took up arms.

For the count there remained nothing but to submit. He surrendered up his strong places, was compelled to acknowledge the crimes alleged against him, and the justice of his punishment. He swore that he would no longer protect heretics. Stripped naked to his middle, with a rope round his neck, he was led to the altar, and there scourged. But the immense army that had assembled was not to be sat-
and disciplines him.

ified by these inflictions on an individual, though the pope might be. They had come for blood and plunder, and blood and plunder they must have. Then followed such scenes of horror as the sun had never looked on before. The army was officered by Roman and French prelates; bishops were its generals, an archdeacon its engineer. It was the Abbot Arnold, the legate of the pope, who, at the capture of Beziers, was inquired of by a soldier, more merciful or more weary of murder than himself, how he should distinguish and save the Catholic from the heretic. "Kill them all," he exclaimed; "God will know his own." At the Church of St. Mary Magdalene 7000 persons were massacred, the infuriated Crusaders being excited to madness by the wicked assertion that these wretches had been guilty of the blasphemy of saying, in their merriment, "S. Mariam Magdalenam fuisse concubinam Christi." It was of no use for them to protest their innocence. In the town twenty thousand were slaughtered, and the place then fired, to be left a monument of papal vengeance. At the massacre of Lavaur 400 people were burned in one pile; it is remarked that "they made a wonderful blaze, and went to burn everlastingly in hell." Language has no powers to express the atrocities that took place at the capture of the different towns. Ecclesiastical vengeance rioted in luxury. The soil was steeped in the blood of men—the air polluted by their burning. From the reek of murdered women, mutilated children, and blasted cities, the Inquisition, that infernal institution, arose. Its projectors intended it not only to put an end to public teaching, but even to private thought. In the midst of these awful events, Innocent was called to another tribunal to render his account. He died A.D. 1216.

Atrocities of the
Crusaders in the
South of France.

Institution of the
Inquisition.

It was during the pontificate of this great criminal that the mendicant orders were established. The course of ages had brought an unintelligibility into public worship. The old dialects had become obsolete; new languages were forming. Among those classes, daily increasing in number, whose minds were awakening, an earnest desire for instruction was arising. Multitudes were crowding to hear philosophical discourses in the universities, and heresy was spreading very fast. But it was far from being confined to the intelligent. The lower orders furnished heretics and fanatics too. To antagonize the labors of these zealots—who, if they had been permitted to go on unchecked, would quickly have disseminated their doctrines through all classes of society—the Dominican and Franciscan orders were founded. They were well adapted to their duty. It was their business to move among the people, preaching to them, in their own tongue, wherever an audience could be collected. The scandal under which the Church was laboring because of her wealth could not apply to these, who lived by begging alms. Their function was not to secure their own salvation, but that of other men.

Establishment of
mendicant orders.

St. Dominic was born A.D. 1170. His birth and life were adorned St. Dominic. with the customary prodigies. Miracles and wonders were necessary for any thing to make a sensation in the West. If his was not an immaculate conception, he was free from original sin. He was regarded as the adopted son of the Virgin; some were even disposed to assign him a higher dignity than that. He began his operations in Languedoc; but, as the prospect opened out before him, he removed from that unpromising region to Rome, the necessary centre of all such undertakings as his. Here he perfected his organization; instituted his friars, nuns, and tertiaries; and consolidated his pretensions by the working of many miracles. He exorcised three matrons, from whom Satan issued forth under the form of a great black cat, which ran up a bell-rope and vanished. A beautiful nun resolved to leave her convent. Happening to blow her nose, it dropped off into her handkerchief; but, at the fervent prayer of St. Dominic, it was replaced, and in gratitude, tempered by fear, she remained. St. Dominic could also raise the dead. Nevertheless, he died A.D. 1221, having worthily obtained the title of the burner and slayer of heretics. To him has been attributed the glory or the crime of being the inventor of 'the Holy Inquisition.' In a very few years his order boasted of nearly 500 monasteries, scattered over Europe, Asia, Africa.

St. Francis, the compeer of St. Dominic, was born A.D. 1182. His fol- St. Francis. lowers delighted to point out, as it would seem not without irreverence, a resemblance to the incidents that occurred at the birth of our Lord. A prophetess foretold it; he was born in a stable; angels sung forth peace and good-will in the air; one, under the form of Simeon, bore him to baptism. In early life he saw visions and became ecstatic. His father, Peter Bernardini, a respectable tradesman, endeavored to restrain his eccentricities, at first by persuasion, but eventually more forcibly, appealing for assistance to the bishop, to prevent the young enthusiast from squandering his means in alms to the poor. On that functionary's gently remonstrating, and pointing out to Francis his filial obligations, he stripped himself naked before the people, exclaiming, "Peter Bernardini was my father; I have now but one Father, he that is in heaven." At this affecting renunciation of all earthly possessions and earthly ties, those present burst into tears, and the good bishop threw his own mantle over him. When a man has come to this pass, there is nothing he can not accomplish.

It is related that, when application was first made to Innocent to authorize the order, he refused; but, very soon recognizing the Authorization of these orders. advantages that would accrue, he gave it his hearty patronage. So rapid was the increase, that in A.D. 1219 it numbered not less than five thousand brethren. It was founded on the principles of chastity, poverty, o They were to live on alms, but never to re-

ceive money. After a life of devotion to the Church, St. Francis attained his reward, A.D. 1226. Two years previously to his death, by a miraculous intervention there were impressed on his person marks answering to the wounds on our Savior. These were the celebrated stigmata. A black growth, like nails, issued forth from the palms of his hands and his feet; a wound from which blood and water distilled opened in his side. It is not to be wondered at that these prodigies met with general belief. This was the generation which received as inestimable relics, through Andrew of Hungary, the heads of St. Stephen and St. Margaret, the hands of St. Bartholomew and St. Thomas, a slip of the rod of Aaron, and one of the water-pots of the marriage at Cana in Galilee.

The papal government quickly found the prodigious advantage arising from the institution of these mendicant orders. Vowed Influence derived from these orders. to poverty, living on alms, the hosts of friars, begging and barefoot, pervaded all Europe, coming in contact, under the most favorable circumstances, with the lowest grades of society. They lived and moved among the populace, and yet were held sacred. The accusations of dissipation and luxury so forcibly urged against the regular clergy were altogether inapplicable to these rope-bound, starving fanatics. Through them the Italian government had possession of the ear of Europe. The pomp of worship in an unknown tongue, the gorgeous solemnities of the Church, were far more than compensated by the preaching of these missionaries, who held forth in the vernacular wherever an audience could be had. Among the early ones, some had been accustomed to a wandering life. Brother Pacificus, a disciple of St. Francis, had been a celebrated Trouvère. In truth, they not only warded off the present pressing danger, but through them the Church retained her hold upon the laboring classes for several subsequent centuries. The pope might truly boast that the Poor Men of the Church were more than a match for the Poor Men of Lyons. Their influence began to diminish only when they abandoned their essential principles, joined in the common race for plunder, and became immensely rich.

Not only did Innocent III. thus provide himself with an ecclesiastical militia suited to meet the obviously impending insurrection, he increased his power greatly but insidiously by the formal introduction of auricular confession. It was by the fourth Lateran Council that Introduction of auricular confession. the necessity of auricular confession was first formally established. Its aim was that no heretic should escape, and that the absent priest should be paramount even in the domestic circle. In none but a most degraded and superstitious society can such an infamous institution be tolerated. It invades the sacred privacy of life—makes a man's wife, children, and servants his spies and accusers. When any religious system stands in need of such a social immorality, we may be sure that it is irrecoverably diseased, and hastening to its end.

Auricular confession led to an increasing necessity for casuistry, though that science was not fully developed until the time of the Jesuits, when it gave rise to an extensive literature, with a lax system and a false morality, guiding the penitent rather with a view to his usefulness to the Church than to his own reformation, and not hesitating at singular indecencies in its portion having reference to married life.

Great historical events often find illustrations in representative men. Such is the case in the epoch we are now considering. On one side stands Innocent, true to the instincts of his party, interfering with all the European nations; launching forth his interdicts and excommunications; steeped in the blood of French heretics; hesitating at no atrocity, even the outrage and murder of women and children, the ruin of flourishing cities, to compass his plans; in all directions, under a thousand pretenses, draining Europe of its money; calling to his aid hosts of begging friars; putting forth imposture miracles; organizing the Inquisition, and invading the privacy of life by the contrivance of auricular confession.

On the other side stands Frederick II., the Emperor of Germany. His early life, as has been already mentioned, page 344, was spent in Sicily, in familiar intercourse with Jews and Arabs, and Sicily to the last was the favored portion of his dominions. To his many other accomplishments he added the speaking of Arabic as fluently as a Saracen. He delighted in the society of Mohammedan ladies, who thronged his court. His enemies asserted that his chastity was not improved by his associations with these miscreant beauties. The Jewish and Mohammedan physicians and philosophers taught him to sneer at the pretensions of the Church. From such ridicule it is but a short step to the shaking off of authority. At this time the Spanish Mohammedans had become widely infected with irreligion; their greatest philosophers were infidel in their own infidelity. The two sons of Averrhoes of Cordova were residents at Frederick's court. Their father was one of the ablest men their nation ever produced: an experienced astronomer, he had translated the *Almagest*, and, it is affirmed, was the first who actually saw a transit of Mercury across the sun; a voluminous commentator on the works of Plato and Aristotle, but a disbeliever in all revelation. Even of Mohammedanism he said, alluding to the prohibition which the Prophet had enjoined on the use of the flesh of swine, "That form of religion is destitute of every thing that can commend it to the approval of any understanding, unless it be that of a hog." In the Sicilian court, surrounded by such unholy influences, the character of the young emperor was formed. Italian poetry, destined for such a brilliant future, here first found a voice in the sweet Sicilian dialect. The emperor and his chau-

Development
of casuistry.

Attitude of In-
nocent III.

Attitude of
Frederick II.

His Mohammed-
an tendencies.

He cultivates
light literature
and luxury.

cellor were cultivators of the gay science, and in the composition of sonnets were rivals. A love of amatory poetry had spread from the South of France.

With a view to the recovery of the Holy Land, Honorius III. had made Frederick marry Yolinda de Lusignan, the heiress of the kingdom of Jerusalem. It was not, therefore, to be wondered at that Frederick's frivolities soon drew upon him the indignation of the gloomy Pope Gregory IX., the very first act of whose pontificate was to summon a new crusade. To the exhortations and commands of the aged pope the emperor lent a most reluctant ear, postponing, from time to time, the period of his departure, and dabbling in doubtful negotiations, through his Mohammedan friends, with the Sultan of Egypt. He embarked at last, but in three days returned. The octogenarian pope was not to be trifled with, and pronounced his excommunication. Frederick treated it with ostensible contempt, but appealed to Christendom, accusing Rome of avaricious intentions. Her officials, he said, were traveling in all directions, not to preach the Word of God, but to extort money. "The primitive Church, founded on poverty and simplicity, brought forth numberless saints. The Romans are now rolling in wealth. What wonder that the walls of the Church are undermined to the base, and threaten utter ruin." For saying this he underwent a more tremendous excommunication; but his partisans in Rome, raising an insurrection, expelled the pope. And now Frederick set sail, of his own accord, on his crusading expedition. On reaching the Holy Land, he was received with joy by the knights and pilgrims; but the clergy held aloof from him as an excommunicated person. The pontiff had dispatched a swift-sailing ship to forbid their holding intercourse with him. His private negotiations with the Sultan of Egypt now came to maturity. The Christian camp was thronged with infidel delegates: some came to discuss philosophical subjects, some were the bearers of presents. Elephants and a bevy of dancing-girls were courteously sent by the sultan to his friend, who, it is said, was not insensible to the witcheries of the Oriental beauties. He wore a Saracen dress. In his privacy he did not hesitate to say, "I came not here to deliver the Holy City, but to maintain my estimation among the Franks." To the sultan he appealed, "Out of your goodness, surrender to me Jerusalem as it is, that I may be able to lift up my head among the kings of Christendom." Accordingly, the city was surrendered to him. The object of his expedition was accomplished. But the pope was not to be deceived by such collusions. He repudiated the transactions altogether, and actually took measures to lay Jerusalem and the Savior's sepulchre under interdict, and this in the face of the Mohammedans. While the emperor proclaimed his successes to Europe, the pope denounced them as coming from the union of

Refuses to go on a crusade, and then goes.

Presumes to rebuke the pontifical government.

His friendship with the sultan.

who gives up Jerusalem to him.

The pope denounces him. Christ and Belial; alleging four accusations against Frederick: 1. That he had given the sword which he had received from the altar of St. Peter for the defense of the faith, as a present to the Sultan of Babylon; 2. That he had permitted the preaching of the Koran in the holy Temple itself; 3. That he had excluded the Christians of Antioch from his treaty; 4. That he had bound himself, if a Christian army should attempt to cleanse the Temple and city from Mohammedan defilements, to join the Saracens.

Frederick crowned himself at Jerusalem, unable to find any ecclesiastic who dared to perform the ceremony, and departed from the Holy Land. It was time, for Rome was intriguing against him at home, a false report of his death having been industriously circulated. He forthwith prepared to enter on his conflict with the pontiff. His Saracen colonies at Nocera and Luceria, in Italy, could supply him with 30,000 Mussulman soldiers, with whom it was impossible for his enemies to tamper. He managed to draw over the general sentiment of Europe to his side, and publicly offered to convict the pope himself of negotiations with the infidels; but his antagonist, conveniently impressed with a sudden horror of shedding blood, gave way, and peace between the parties was made. It lasted nearly nine years.

His political institutions. In this period, the intellectual greatness of Frederick, and the tendencies of the influences by which he was enveloped, were strikingly manifested. In advance of his age, he devoted himself to the political improvement of Sicily. He instituted representative parliaments; enacted a system of wise laws; asserted the principle of equal rights and equal burdens, and the supremacy of the law over all, even the nobles and the Church. He provided for the toleration of all professions, Jew and Mohammedan, as well as Christian; emancipated all the serfs of his domains; instituted cheap justice for the poor; forbade private war; regulated commerce—prophetically laying down some of those great principles, which only in our own time have been finally received as true; established markets and fairs; collected large libraries; caused to be translated such works as those of Aristotle and Ptolemy; built menageries for natural history; founded in Naples a great university; patronized the medical college at Salernum; made provisions for the education of promising but indigent youths. All over the land splendid architectural triumphs were created. Under him the Italian language first rose above a patois. Sculpture, and painting, and music were patronized. His chancellor is said to have been the author of the oldest sonnet.

In the eye of Rome all this was an abomination. Were human laws to take the precedence of the law of God? Were the clergy to be degraded to a level with the laity? Were the Jew and the Mohammedan to be permitted their infamous rites? Was this new-born product of

the insolence of human intellect—this so-called science—to be brought into competition with theology, the heaven-descended? Frederick and his parliaments, his laws and universities, his libraries, his statues, his pictures and sonnets, were denounced. They are denounced. Through all, the ever-watchful eye of the Church discerned the Jew and the Saracen, and held them up to the abhorrence of Europe. But Gregory was not unwilling to show what could be done by himself in the same direction. He caused a compilation of the Decretals to be issued, intrusting the work to one Raymond de Pennaforte, who had attained to celebrity as a literary opponent of the Saracens. It is amusing to remark that even this simple work of labor could not be promulgated without the customary embellishments. It was given out that an angel watched over his shoulder all the time he was writing.

Meantime an unceasing vigilance was maintained against the dangerous results that would necessarily ensue from Frederick's movements. In Rome, many heretics were burned; many condemned to imprisonment for life. The quarrel between the pope and the emperor was again resumed; the latter being once more excommunicated, and his body delivered over to Satan for the good of his soul. Again Frederick appealed to all the sovereigns of Christendom. He denounced the pontiff as an unworthy vicar of Christ, "who sits in his court like a merchant, weighing out dispensations for gold—himself writing and signing the bulls, perhaps counting the money. He has but one cause of enmity against me, that I refused to marry to his niece my natural son Enzo, now King of Sardinia." "In the midst of the Church sits a frantic prophet, a man of falsehood, a polluted priest." To this Gregory replied. The tenor of his answer may be gathered from its commencement: "Out of the sea a beast is arisen, whose name is written all over 'Blasphemy.'" "He falsely asserts that I am enraged at his refusing his consent to the marriage of my niece with his natural son. He lies more impudently when he says that I have pledged my faith to the Lombards." "In truth, this pestilent king maintains, to use his own words, that the world has been deceived by three impostors—Jesus Christ, Moses, and Mohammed; that of these two died in honor, and the third was hanged on a tree. Even now, he has asserted, distinctly and loudly, that those are fools who aver that God, the Omnipotent Creator of the world, was born of a woman." This was in allusion to the celebrated and mysterious book, "*De Tribus Impostoribus*," in the authorship of which Frederick was accused of having been concerned.

The pontiff had touched the right cord. The begging friars, in all directions, added to the accusations. "He has spoken of the Host as a mummery; he has asked how many gods might be made out of a corn-field; he has affirmed that, if the princes of the world would stand by

him, he would easily make for mankind a better faith and a better rule of life; he has laid down the infidel maxim that 'God expects not a man to believe any thing that can not be demonstrated by reason.' The opinion of Christendom rose against Frederick; its sentiment of piety was shocked. The pontiff proceeded to depose him, and offered his crown to Robert of France. But the Mussulman troops of the emperor were too much for the begging friars of the pope. His Saracens were marching across Italy in all directions. The pontiff himself would have inevitably fallen into the hands of his mortal enemy had he not found a deliverance in death, A.D. 1241. Frederick had declared that he would not respect his sacred person, but, if victorious, would teach him the absolute supremacy of the temporal power. It was plain that he had no intention of respecting a religion which he had not hesitated to denounce as "a mere absurdity."

Whatever may have been the intention of Innocent IV.—who, after the short pontificate of Celestine IV. and an interval, succeeded—he was borne into the same policy by the irresistible force of circumstances. The deadly quarrel with the emperor was renewed. To escape his wrath, Innocent fled to France, and there in safety called the Council of Lyons. In a sermon, he renewed all the old accusations—the heresy and sacrilege—the peopling of Italian cities with Saracens, for the purpose of overturning the Vicar of Christ with those infidels—the friendship with the Sultan of Egypt—the African courtesans—the perjuries and blasphemies. Then was proclaimed the sentence of excommunication and deposition. The pope and the bishops inverted the torches they held in their hands until they went out, uttering the malediction, "So may he be extinguished." Again the emperor appealed to Europe, but this time in vain. Europe would not forgive him his blasphemy. Misfortunes crowded upon him; his friends forsook him; his favorite son, Enzo, was taken prisoner; and he never smiled again after detecting his intimate, Pietro de Vineia, whom he had raised from beggary, in promising the monks that he would poison him. The day had been carried by a resort to all means justifiable and unjustifiable, good and evil. For thirty years Frederick had combated the Church and the Guelph party, but he sunk in the conflict at last. When Innocent heard of the death of his foe, he might doubtless well think that what he had once asserted had at last become true: "We are no mere mortal man; we have the place of God upon earth." In his address to the clergy of Sicily he exclaimed, "Let the heavens rejoice and let the earth be glad; for the lightning and tempest wherewith God Almighty has so long menaced your heads have been changed by the death of this man into refreshing zephyrs and fertilizing dews." This is that superhuman vengeance which does not strike the corpse of a man. Rome never forgives her of her impostures face to face; she never touched her goods.

The Saracenic influences had thus found an expression in the South of France and in Sicily, involving many classes of society, from the Poor Men of Lyons to the Emperor of Germany; but in both places they were overcome by the admirable organization and unscrupulous vigor of the Church. She handled her weapons with singular dexterity, and contrived to extract victory out of humiliation and defeat. As ever since the days of Constantine, she had partisans in every city, in every village, in every family. And now it might have appeared that the blow she had thus delivered was final, and that the world, in contentment, must submit to her will. She had again succeeded in putting her iron heel on the neck of knowledge, and had stamped upon it amid the hatred of Christendom, reviling it as the monstrous but legitimate issue of the detested Mohammedanism.

But the fate of men is by no means an indication of the fate of principles. The fall of the Emperor Frederick was not followed by the destruction of the influences he represented. These not only survived him, but were destined, in the end, to overcome the power which had transiently overthrown them. We are now entering on the history of a period which offers to us not only exterior opposition to the current doctrines, but, what is more ominous, interior mutiny. Notwithstanding the awful persecutions in the South of France—notwithstanding the establishment of auricular confession as a detective means, and the Inquisition as a weapon of punishment—notwithstanding the influence of the French king, St. Louis, canonized by the grateful Church—heresy, instead of being extirpated, extended itself among the laity, and even spread among the ecclesiastical ranks. St. Louis, the representative of the hierarchical party, gathers influence only from the circumstance of his relations with the Church, of whose interests he was a fanatical supporter. So far as the affairs of his people were concerned, he can hardly be looked upon as any thing better than a simpleton. His reliance for checking the threatened spread of heresy was a resort to violence—the fagot and the sword. In his opinion, “A man ought never to dispute with a misbeliever except with his sword, which he ought to drive into the heretic’s entrails as far as he could.” It was the signal glory of his reign that he secured for France that inestimable relic, the crown of thorns. This peerless memento of our Savior’s passion he purchased in Constantinople for an immense sum. But France was doubly and enviably enriched; for the Abbey of St. Denys was in possession of another, known to be equally authentic. Besides the crown, he also secured the sponge that was dipped in vinegar; the lance of the Roman soldier; also the swaddling-clothes in which the Savior had first lain in the manger; the rod of Moses; and part of the skull of John the Baptist. These treasures he deposited in the “Holy Chapel” of Paris.

Power of the
Church at
this moment.

Vitality of Fred-
erick’s principles.

His superstition.

Under the papal auspices, St. Louis determined on a crusade; and and crusade. nothing, except what we have already mentioned, can better show his mental imbecility than his disregard of all suitable arrangements for it. He thought that, provided the troops could be made to lead a religious life, all would go well; that the Lord would fight his own battles, and that no provisions of a military or worldly kind were needed. In such a pious reliance on the support of God, he reached Egypt with his expedition in June, A.D. 1249. The ever-conspicuous valor of the French troops could maintain itself in the battle-field, but not against pestilence and famine. In March of the following year, as might have been foreseen, King Louis was the prisoner of the sultan, and was only spared the indignity of being carried about as a public Its total failure. spectacle in the Mohammedan towns by a ransom, at first fixed at a million of Byzantines, but by the merciful sultan voluntarily reduced one fifth. Still, for a time, Louis lingered in the East, apparently stupefied by considering how God could in this manner have abandoned a man who had come to his help. Never was there a crusade with a more shameful end.

Notwithstanding the support of St. Louis in his own dominions, the intellectual revolt spread in every direction, and that not only in France, The Inquisition attempts to arrest the intellectual revolt. but throughout all Catholic Europe. In vain the Inquisition exerted all its terrors—and what could be more terrible than its form of procedure? It sat in secret; no witness, no advocate was present; the accused was simply informed that he was charged with heresy, it was not said by whom. He was made to swear that he would tell the truth as regarded himself, and also respecting other persons, whether parents, children, friends, strangers. If he resisted he was committed to a solitary dungeon, dark and poisonous; his food was diminished; every thing was done to drive him into insanity. Then the familiars of the Holy Office, or others in its interests, were by degrees to work upon him to extort confession as to himself or accusations against others. But this fearful tribunal did not fail to draw upon itself the indignation of men. Its victims, condemned for heresy, were perishing in all directions. The usual apparatus of death, the stake and fagots, had become unsuited to its wholesale and remorseless vengeance. The convicts were so numerous as to require pens made of stakes and filled with straw. It was thus that, before the Archbishop of Rheims and seven Burnings of heretics. teen other prelates, one hundred and eighty-three heretics, together with their pastor, were burned alive. Such outrages against humanity can not be perpetrated without bringing in the end a retribution. In other countries the rising indignation was exasperated by local causes; in England, for instance, by the continual intrusion of Italian ecclesiastics into the richest benefices. Some of them were mere boys; many were non-residents; some had not so much as seen the country from which they drew their ample wealth. The Archbishop of York

was excommunicated, with torches and bells, because he would not bestow the abundant revenues of his Church on persons from beyond the Alps; but for all this "he was blessed by the people." The archbishopric of Canterbury was held, A.D. 1241, by Boniface of Savoy, to whom had been granted by the pope the first-fruits of all the benefices in his province. His rapacity was boundless. From all the ecclesiastics and ecclesiastical establishments under his control he extorted enormous sums. Some, who, like the Dean of St. Paul's, resisted him, were excommunicated; some, like the aged Sub-prior of St. Bartholomew's, were knocked down by his own hand. Of a military turn—he often wore a cuirass under his robes—he joined his brother, the Archbishop of Lyons, who was besieging Turin, and wasted the revenues of his see in England in intrigues and petty military enterprises against his enemies in Italy.

Not among the laity alone was there indignation against such a state of things. Mutiny broke out in the ranks of the Church. It was not that among the humbler classes the sentiment of piety had become diminished. The Shepherds, under the leadership of the Master of Hungary, passed by tens of thousands through France to excite the clergy to arouse for the rescue of good King Louis, in bondage to the Mussulmen. They asserted that they were commissioned by the Virgin, and were fed miraculously by the Master. Originating in Italy, the Flagellants also passed, two by two, through every city, scourging themselves for thirty-three days in memory of the years of our Lord. These dismal enthusiasts emulated each other, and were rivals of the mendicant friars in their hatred of the clergy. The mendicants were beginning to justify that hesitation which Innocent displayed when he was first importuned to authorize them. The papacy had reaped from these orders much good; it was now to gather a fearful evil. They had come to be learned men instead of ferocious bigots. They were now, indeed, among the most learned men of their times. They had taken possession of many of the seats of learning. In the University of Paris, out of twelve chairs of theology, three only were occupied by the regular clergy. The mendicant friars had entered into the dangerous paths of heresy. They became involved in that fermenting leaven that had come from Spain, and among them revolt broke out.

With an unerring instinct, Rome traced the insurrection to its true source. We have only to look at the measures taken by the popes to understand their opinion. Thus Innocent III., A.D. 1215, regulated, by his legate, the schools of Paris, permitting the study of the Dialectics of Aristotle, but forbidding his physical and metaphysical works and their commentaries. These had come through an Arabic channel. A rescript of Gregory XI., A.D. 1231, interdicts those on natural philosophy until they had been purified by the theologians of the Church. These regulations were confirmed by Clement IV., A.D. 1265.

Mutiny arising
in the Church.

The Shepherds
and Flagellants.

The mendicant
friars
are affected.

Rome prohibits
the study
of science.

CHAPTER XVII.

THE AGE OF FAITH IN THE WEST—(Continued).

OVERTHROW OF THE ITALIAN SYSTEM BY THE COMBINED INTELLECTUAL AND MORAL ATTACK.

Progress of Irreligion among the mendicant Orders.—Publication of heretical Books.—The Everlasting Gospel and the Comment on the Apocalypse.

Conflict between Philip the Fair and Boniface VIII.—Outrage upon and death of the Pope.

The French King removes the Papacy from Rome to Avignon.—Post-mortem Trial of the Pope for Atheism and Immorality.—Causes and Consequences of the Atheism of the Pope.

The Templars fall into Infidelity.—Their Trial, Conviction, and Punishment.

Immoralities of the Papal Court at Avignon.—Its return to Rome.—Causes of the great Schism.

—Disorganization of the Italian System.—Decomposition of the Papacy.—Three Popes.

The Council of Constance attempts to convert the papal Autocracy into a constitutional Monarchy.

—It murders John Huss and Jerome of Prague.—Pontificate of Nicolas V.—End of the intellectual influence of the Italian System.

ABOUT the close of the twelfth century appeared among the mendicant friars that ominous work, which, under the title of "The Everlasting Gospel," struck terror into the Latin hierarchy. It was affirmed that an angel had brought it from heaven, engraven on copper plates, and had given it to a priest called Cyril, who delivered it to the Abbot Joachim. The abbot had been dead about fifty years, when there was put forth, A.D. 1250, a true exposition of the tendency of his book, under the form of an introduction, by John of Parma, the general of the Franciscans, as was universally suspected or alleged. Notwithstanding its heresy, the work displayed an enlarged and masterly conception of the historical progress of humanity. In this introduction, John of Parma pointed out that the Abbot Joachim, who had not only performed a pilgrimage to the Holy Land, but had been revered as a prophet, received as of unimpeachable orthodoxy, and canonized, had accepted as his fundamental position that Roman Christianity had done its work, and had now come to its inevitable termination. He proceeded to show that there are epochs or ages in the Divine government of the world; that, during the Jewish dispensation, it had been under the immediate influence of God the Father; during the Christian dispensation, it had been under that of God the Son; and that the time had now arrived when it would be under the influence of God the Holy Ghost; that, in the coming ages, there would be no longer any need of faith, but that all things would be according to wisdom and reason. It was the ushering in of a new time. So spake, with needful obscurity, the Abbot Joachim, and so, more plain-

The Everlasting Gospel.

Introduction to it by the General of the Franciscans.

ly, the General of the Franciscans in his Introduction. "The Everlasting Gospel" was declared by its adherents to have supplanted the New Testament, as that had supplanted the Old—these three books constituting a threefold revelation, answering to the Trinity of the Godhead. At once there was a cry from the whole hierarchy. The Pope, Alexander IV., without delay, took measures for the destruction of the book. Attempts to destroy the book. Whoever kept or concealed a copy was excommunicate. But among the lower mendicants—the Spiritualists, as they were termed—the work was held in the most devout repute. With them it had taken the place of the Holy Scriptures. So far from being suppressed, it was followed, in about forty years, A.D. 1297, by the Comment on the Apocalypse, by John Peter Oliva, who, in Sicily, The Comment on the Apocalypse. had accepted the three epochs or ages, and divided the middle one—the Christian—into seven stages: the age of the Apostles; that of the Martyrs; that of Heresies; that of Hermits; that of the Monastic System; that of the overthrow of Anti-Christ, and that of the coming Millennium. He agreed with his predecessors in the impending abolition of Roman Christianity, stigmatized that Church as the purple harlot, and with them affirmed that the pope and all his hierarchy had become superfluous and obsolete—"their work was done, their doom sealed." His zealous followers declared that the sacraments of the Church were now all useless, those administering them Spread of these doctrines among ecclesiastics. having no longer any jurisdiction. The burning of thousands of these "Fratricelli" by the Inquisition was altogether inadequate to suppress them. Eventually, when the Reformation occurred, they mingled among the followers of Luther.

To the internal and doctrinal troubles thus befalling the Church, material and foreign ones of the most vital importance were soon added. Approaching difficulties of the Church. The true reason of the difficulties into which the papacy was falling was now coming conspicuously into light. It was absolutely necessary that money should be drawn to Rome, and the sovereigns of the Western kingdoms, France and England, from which it had hitherto been largely obtained, were determined that it should be so no longer. They had equally urgent need of all that could be extorted themselves. In France, even by St. Louis, it was enacted that the papal power in the election of the clergy should be restrained; and, complaining of the drain of money from the kingdom to Rome, he applied the effectual remedy of prohibiting any such assessments or taxations for the future.

We have now reached the pontificate of Boniface VIII., an epoch in the intellectual history of Europe. Under the title of Celestine V. a visionary hermit had been raised to the papacy—visionary, for Peter Morrone is pope. Peter Morrone (such was his name) had long been indulged in apparitions of angels and the sounds of phantom bells in the air.

Peter was escorted from his cell to his supreme position by admiring crowds; but it very soon became apparent that the life of an anchorite is not a preparation for the duties of a pope. The conclave of cardinals had elected him, not from any impression of his suitableness, but because they were evenly balanced in two parties, neither of which would give way. They were therefore driven to a temporary and available election. But scarcely had this been done when his incapacity became conspicuous and his removal imperative. It is said that the friends of Benedetto Gaetani, the ablest of the cardinals, through a hole perforated in the pope's chamber wall, at midnight, in a hollow voice, warned him that he retained his dignity at the peril of his soul, and in the name of Celestine V. God commanded him to abdicate. And so, in spite of all im-
Celestine V. terrified into abdication. portunity, he did. His abdication was considered by many pious men as striking a death-blow at papal infallibility.

It was during his pontificate that the miracle of Loretto occurred. The house inhabited by the Virgin immediately after her conception had been converted, on the death of the Holy Family, into a chapel, and St. Luke had presented to it an image, carved by his own hands, still known as our Lady of Loretto. Some angels, chancing to be at Nazareth when the Saracen conquerors approached, fearing that the sacred relic might fall into their possession, took the house bodily in their hands, and, carrying it through the air, after several halts, finally deposited it at Loretto in Italy.

So Benedetto Gaetani, whether by such wily procurements or not, became Pope Boniface VIII., A.D. 1294. His election was probably due to King Charles, who held twelve electoral votes, the bitter personal animosity of the Colonnas having been either neutralized or overcome. The first care of Boniface was to consolidate his power and relieve himself of a rival. In the opinion of many it was not possible for a pope to abdicate. Confinement in prison soon (A.D. 1296) determined that question. The soul of Celestine was seen by a monk ascending the skies, which opened to receive it into heaven; and a splendid funeral informed his enemies that they must now acknowledge Boniface as the unquestioned pope. But the princely Colonnas, the leaders of the Ghibelline faction in Rome, who had resisted the abdication of Celestine to the last, and were, therefore, mortal enemies of Boniface, revolted. He published a bull against them; he excommunicated them. With an ominous anticipation of the future—for they were familiar with the papal power, and knew where to touch it to the quick—they appealed to a "General Council." Since supernatural weapons did not seem to avail, Boniface proclaimed a crusade against them. The issue answered his expectations. Palestrina, one of their strong-holds, which in a moment of weakness they had surrendered, was devastated and sown with salt.

The miracle of Loretto.

Ascent of Pope Celestine to heaven.

Quarrel of Boniface and the Colonnas.

The Colonnas fled, some of them to France. There, in King Philip the Fair, they found a friend, who was destined to avenge their wrongs, and to inflict on the papacy a blow from which it never recovered.

This was the state of affairs at the commencement of the quarrel between Philip and Boniface. The Crusades had brought all Europe under taxation to Rome, and loud complaints were every where made against the drain of money into Italy. Things had at last come to such a condition that it was not possible to continue the Crusades without resorting to a taxation of the clergy, and this was Pecuniary necessities of Rome. the true reason of the eventual lukewarmness, and even opposition to them. But the stream of money that had thus been passing into Italy had engendered habits of luxury and extravagance. Cost what it might, money must be had in Rome. The perennial necessity under which the kings of England and France found themselves—the necessity of revenue for the carrying out of their temporal projects—could only be satisfied in the same way. The wealth of those nations had insensibly glided into the hands of the Church. In England, Edward I. compelled the taxation of the clergy. They resisted at first, but The King of England compels the clergy to pay taxes. that sovereign found an ingenious and effectual remedy. He directed his judges to hear no cause in which an ecclesiastic was a complainant, but to try every suit brought against them; asserting that those who refused to share the burdens of the state had no right to the protection of its laws. They forthwith submitted. In the nature and efficacy of this remedy we for the first time recognize the agency of a class of men soon to rise to power—the lawyers.

In France, Philip the Fair made a similar attempt. It was not to be supposed that Rome would tolerate this trespassing on what she considered her proper domain, and accordingly Boniface The King of France attempts it. issued the bull "*Clericis laicos*," excommunicating kings who should levy subsidies on ecclesiastics. Hereupon Philip determined that, if the French clergy were not tributary to him, France should not be tributary to the pope, and issued an edict prohibiting the export of gold and silver from France without his license. But he did not resort to these extreme measures until he had tried others which perhaps he considered less troublesome. He had plundered the Jews, confiscated their property, and expelled them from his dominions. The Church was fairly next in order; and, indeed, the mendicant friars of the lower class, who, as we have seen, were disaffected by the publication of "*The Everlasting Gospel*," were loud in their denunciations of her wealth, attributing the prevailing religious demoralization to it. They Is abetted by the begging friars, pointed to the example of our Lord and his disciples; and when their antagonists replied that even He condescended to make use of money, the malignant fanatics maintained their doctrines, amid the applause of a jeering populace, by answering that it was not St. Peter, but Judas,

who was intrusted with the purse, and that the pope stood in need of the bitter rebuke which Jesus had of old administered to his prototype Peter, saying, "Get thee behind me, Satan; for thou savorest not of the things that be of God, but of the things that be of men" (Mark, viii., 33). Under that authority they affirmed that they might stigmatize the great culprit without guilt. So the king ventured to put forth his hand and touch what the Church had, and she cursed him to his face. At first a literary war ensued: the pope published his bull, the king his reply. Already the policy which Philip was following, and the ability he was displaying, manifested that he had attached to himself that new power and ably sustained by the lawyers. of which the King of England had taken advantage—a power soon to become the mortal enemy of the ecclesiastic—the lawyers. In the mean time, money must be had in Rome; when, by the singularly felicitous device of the proclamation of a year of jubilee, A.D. 1300, large sums were again brought into Italy.

Boniface had thus four antagonists on his hands—the King of France, the Colonnas, the lawyers, and the mendicants. By the latter, both high and low, he was cordially hated. Thus the higher English Franciscans were enraged against him because he refused to let them hold lands. They attempted to bribe him with 40,000 ducats; but he seized the money at the banker's, under the pretense that it had no owners, as the mendicants were vowed to poverty, and then denied the privilege. As to the lower Franciscans, heresy was fast spreading among them. They were not only infected with the doctrines of "The Everlasting Gospel," but had even descended into the abyss of irreligion one step more, by placing St. Francis in the stead of our Savior. They were incessantly repeating in the ears of the laity that the pope was Anti-Christ, "the Man of Sin." The quarrel between Philip and Boniface was every moment increasing in bitterness. The former seized and imprisoned a papal nuncio, who had been selected because he was known to be personally offensive; the latter retaliated by the issue of bulls protesting against such an outrage, interfering between the king and his French clergy, and citing the latter to appear in Rome and take cognizance of their master's misdoings. The monarch was actually invited to be present and hear his own doom. In the lesser bull—if it be authentic—and the king's rejoinder, both parties seem to have lost their temper. This was followed by the celebrated bull "*Ausculta Fili*," at which the king's indignation knew no bounds. He had it publicly burned in Paris at the sound of a trumpet; assembled the States-General; and, under the advice of his lawyers, skillfully brought the issue to this: Does the king hold the realm of France of God or of the pope? Without difficulty it might be seen how the French clergy would be compelled to act: since many of them held fiefs of the king, all were in fear of the intrusion of Italian

and ably sustained by the lawyers.

Device of the jubilee.

The four enemies of Boniface.

Collision between the French king and the pope.

The bull "*Ausculta Fili*."

ecclesiastics into the rich benefices. France, therefore, supported her monarch. On his side, Boniface, in the bull "*Unam Sanctam*," asserted his power by declaring that it is necessary to salvation to believe that "every human being is subject to the Pontiff of Rome." Philip, foreseeing the desperate nature of the approaching conflict, and aiming to attach his people firmly to him by putting himself forth as their protector against priestly tyranny; again skillfully appealed to their sentiments by denouncing the Inquisition as an atrocious barbarity, an outrage on human rights, violating all law, resorting to new and unheard-of tortures, and doing deeds at which men's minds revolt with horror. In the South of France this language was thoroughly understood. The lawyers, among whom William de Nogaret was conspicuous, ably assisted him; indeed, his whole movement exhibited the extraordinary intelligence of his advisers. It has been affirmed, and is, perhaps, not untrue, that De Nogaret's father had been burned by the Inquisition. The great lawyer was bent on revenge. The States-General, under his suggestions, entertained four propositions: 1. That Boniface was not the true pope; 2. That he was a heretic; 3. That he was a simoniac; 4. That he was a man weighed down with crimes. De Nogaret, learning from the Colonnas how to touch the papacy in a vital point, demanded that the whole subject should be referred to a "General Council" to be summoned by the king. A second meeting of the States-General was held. William de Plaisian, the Lord of Vezénoble, appeared with charges against the pope. Out of a long list, many of which could not possibly be true, some may be mentioned: that Boniface neither believed in the immortality nor incorruptibility of the soul, nor in a life to come, nor in the real presence in the Eucharist; that he did not observe the fasts of the Church—not even Lent; that he spoke of the cardinals, monks, and friars as hypocrites; that the Holy Land had been lost through his fault; that the subsidies for its relief had been embezzled by him; that his holy predecessor, Celestine, through his inhumanity had been brought to death; that he had said that fornication and other obscene practices were no sin; that he was a Sodomite, and had caused clerks to be murdered in his presence; that he had enriched himself by simony; that his nephew's wife had borne him two illegitimate sons. These, with other still more revolting charges, were sworn to upon the Holy Gospels. The king appealed to "a general council and to a legitimate pope."

The quarrel had now become a mortal one. There was but one course for Boniface to take, and he did take it. He excommunicated the king. He deprived him of his throne, and anathematized his posterity to the fourth generation. The bull was to be suspended in the porch of the Cathedral of Anagni on September 8; but William de Nogaret and one of the Colonnas had already passed into Italy. They

The bull "*Unam Sanctam*."

William de Nogaret.

Action of the States-General.

Accusations against the pope.

hired a troop of banditti, and on September 7 attacked the pontiff in his palace at Anagni. The doors of a church which protected him were strong, but they yielded to fire. The brave old man, in his pontifical robes, with his crucifix in one hand and the keys of St. Peter in the other, sat down on his throne and confronted his assailants. His cardinals had fled through a sewer. So little reverence was there for God's vicar upon earth, that Sciarra Colonna raised his hand to kill him on the spot; but the blow was arrested by De Nogaret, who, with a bitter taunt, told him that here, in his own city, he owed his life to the mercy of a servant of the King of France—a servant whose father had been burned by the Inquisition. The pontiff was spared only to be placed on a miserable horse, with his face to the tail, and led off to prison. They meant to transport him to France to await the general council. He was rescued, returned to Rome, was seized and imprisoned again. On the 11th of October he was dead.

Thus, after a pontificate of nine eventful years, perished Boniface VIII. His history and his fate show to what a gulf Roman Christianity was approaching. His successor, Benedict XII., had but a brief enjoyment of power; long enough, however, to learn that the hatred of the King of France had not died with the death of Boniface, and that he was determined not only to pursue the departed pontiff's memory beyond the grave, but also to effect a radical change in the papacy itself. A basket of figs was presented to Benedict by a veiled female. She had brought them, she said, from the Abbess of St. Petronilla. In an unguarded moment the pontiff ate of them without the customary precaution of having them previously tasted. Alas! what was the state of morals in Italy? A dysentery came on; in a few days he was dead. But the Colonnas had already taught the King of France how one should work who desires to touch the popedom; the event that had just occurred was the preparation for putting their advice into operation. The

Poisoning of
Benedict XII.

Understanding be-
tween the king and
the Archbishop of
Bordeaux.

king came to an understanding with Bernard de Goth, the Archbishop of Bordeaux. Six conditions were arranged between them: 1. The reconciliation between the Church and the king; 2. The absolution of all persons engaged in the affair of Boniface; 3. Tithes from the clergy for five years; 4. The condemnation of the memory of Boniface; 5. The restoration of the Colonnas; 6. A secret article; what it was time soon showed. A swift messenger carried intelligence to the king's partisans in the College of Cardinals, and Bernard became Clement V. "It will be long before we see the face of another pope in Rome!" exclaimed the Cardinal Matteo Orsini, with a prophetic instinct of what was coming when the conspiracy reached its development. His prophecy was only too true. Now appeared what was that sixth, that secret article negotiated between King Philip and De Goth. Clement took up his residence at Avignon in France.

The tomb of the apostles was abandoned. The Eternal City Removal of the papacy to Avignon. had ceased to be the metropolis of Christianity.

But a French prelate had not bargained with a French king for the most eminent dignity to which a European can aspire without having given an equivalent. In as good faith as he could to his contract, in as good faith as he could to his present pre-eminent position, Clement V. proceeded to discharge his share of the obligation. To a certain extent King Philip was animated by an undying vengeance against his enemy, whom he considered as having escaped out of his grasp, but he was also actuated by a sincere desire of accomplishing a reform in the Church through a radical change in its constitution. He was resolved that the pontiffs should be accountable to the kings of France, or that France should more directly influence their conduct. To reconcile men to this, it was for him to show, with the semblance of pious reluctance, what was the state to which morals and faith had come in Rome. The trial of the dead Boniface was therefore entered upon, A.D. 1310. The Post-mortem trial of Pope Boniface. Consistory was opened at Avignon, March 18. The proceedings occupied many months; many witnesses were examined. The main points attempted to be established by their evidence seem to have been these: "That Boniface had declared his belief that there was no such thing as divine law—what was reputed to be such was merely the invention of men to keep the vulgar in awe by the terrors of eternal punishment; that it was a falsehood to assert the Trinity, and fatuous to believe it; that it was falsehood to say that a virgin had The accusations against him. brought forth, for it was an impossibility; that it was falsehood to assert that bread is transubstantiated into the body of Christ; that Christianity is false, because it asserts a future life, of which there is no evidence save that of visionary people." It was in evidence that the pope had said, "God may do the worst with me that he pleases in the future life; I believe as every educated man does, the vulgar believe otherwise. We have to speak as they do, but we must believe and think with the few." It was sworn to by those who had heard him disputing with some Parisians that he had maintained "that neither the body nor the soul rose again." Others testified that "he neither believed in the resurrection nor in the sacraments of the Church, and had denied that carnal gratifications are sins." The Primicerio of St. John's, at Naples, deposed that, when a cardinal, Boniface had said in his presence, "So that God gives me the good things of this life, I care not a bean for that to come. A man has no more a soul than a beast. Did you ever see any one who had arisen from the dead?" He took delight in deriding the blessed Virgin; "for," said he, "she was no more a virgin than my mother." As to the presence of Christ in the Host, "It is nothing but paste." Three knights of Lucca testified that when certain venerable ambassadors, whose names they gave, were in the presence of

the pope at the time of the jubilee, and a chaplain happened to invoke the mercy of Jesus on a person recently dead, Boniface appalled all around him by exclaiming, "What a fool, to commend him to Christ! He could not help himself, and how can he be expected to help others? He was no Son of God, but a shrewd man and a great hypocrite." It might seem impossible to exceed such blasphemy; and yet the witnesses went on to testify to a conversation which he held with the brave old Sicilian admiral, Roger Loria. This devout sailor made the remark, in the pope's presence, that if, on a certain occasion, he had died, it was his trust that Christ would have had mercy on him. To this Boniface replied, "Christ! he was no Son of God; he was a man, eating and drinking like ourselves; he never rose from the dead; no man has ever risen. I am far mightier than he. I can bestow kingdoms and humble kings." Other witnesses deposed to having heard him affirm, "There is no harm in simony. There is no more harm in adultery than in rubbing one's hands together." Some testified to such immoralities and lewdness in his private life that the pages of a modern book can not be soiled with the recital.

In the mean time, Clement did all in his power to save the blackened memory of his predecessor. Every influence that could be brought to bear on the revengeful or politic king was resorted to, and at last with Philip consents to abstain from the prosecution. success. Perhaps Philip saw that he had fully accomplished his object. He had no design to destroy the papacy. His aim was to revolutionize it—to give to the kings of France a more thorough control over it; and, for the accomplishment of that purpose, to demonstrate to what a condition it had come through the present system. Whatever might be the decision, such evidence had been brought forward as, notwithstanding its contradictions and apparent inconsistencies, had made a profound impression on every thinking man. It was the king's consummate policy to let the matter remain where it was. Accordingly, he abandoned all farther action. The gratitude of Clement was expressed in a bull exalting Philip, attributing his action to piety, exempting him from all blame, annulling past bulls prejudicial to him, revoking all punishments of those who had been concerned against Boniface except fifteen persons, on whom a light and nominal penance was inflicted. In November, A.D. 1311, the Council of Vienne met. In the following year three cardinals appeared before it to defend the orthodoxy and holy life of Pope Boniface. Two knights threw down their gauntlets to maintain his innocence by wager of battle. There was no accuser; no one took up the gage; and the council was at liberty quietly to dispose of the

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The religious condition of Pope Boniface.

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could be even so much as brought forward, much more that a succeeding pontiff had to listen to them, and attribute intentions of piety to the accuser. The immoralities of which Boniface was accused were such as in Italy did not excite the same indignation as among the more moral people beyond the Alps; the heresies were those every where pervading the Church. We have already seen what a profound impression "The Everlasting Gospel" had made, and how many followers and martyrs it had. What was alleged against Boniface was only that he had taken one step more in the downward course of irreligion. His fault lay in this, that in an evil hour he had given expression to thoughts which, considering his position, ought to have remained locked up in his inmost soul. As to the rest, if he was avaricious, and accumulated enormous treasures, such as it was said the banditti of the Colonnas seized when they outraged his person, he was no worse than many other popes. Clement V., his successor, died enormously rich; and, what was worse, did not hesitate to scandalize Europe by his prodigal munificence to the beautiful Brunisard, the Countess of Talleyrand, his lady.

The religious condition of Boniface, though not admitting of apology, is capable of explanation. By the Crusades all Europe had been wrought up to a fanatical expectation, doomed necessarily to disappointment. From them the papacy had derived prodigious advantages both in money and power. It was now to experience fearful evils. It had largely promised rewards in this life, and also in the world to come, to those who would take up the Cross; it had deliberately pitted Christianity against Mohammedanism, and staked the authenticity of each on the issue of the conflict. In the face of the whole world it had put forth as the true criterion the possession of the holy places, hallowed by the life, the sufferings, the death, the resurrection of the Redeemer. Whatever the result might be, the circumstances under which this had been done were such that there was no concealing, no dissembling. In all Europe there was not a family which had not been pecuniarily involved in the Crusades, perhaps not one which had not furnished men. Was it at all to be wondered at that every where the people, accustomed to the logic of trial by battle, were terror-stricken when they saw the result? Was it to be wondered at that even still more dreadful heresies spontaneously suggested themselves? Was it at all extraordinary that, if there had been popes sincerely accepting that criterion, the issue should be a pope who was a sincere misbeliever? Was it extraordinary that there should be a loss of papal prestige? It was the papacy which had voluntarily, for its own ends, brought things into this evil channel, and the papacy deserved a just retribution of discredit and ruin. It had wrought on the devout temper of religious Europe for its own sinister purposes; it had drained the Continent of its blood, and perhaps of what was more highly prized—its money; it had established a false issue, an unwar-

rantable criterion, and now came the time for it to reap consequences of a different kind—intellectual revolt among the people, heresy among the clergy. Nor was the pope without eminent comrades in his sin. The Templars, whose duty it had been to protect pilgrims on the way to Jerusalem—who had therefore been long and thoroughly familiar with the state of events in Palestine—had been treading in the same path as the pope. Dark rumors had begun to circulate throughout Europe that these, the very vanguard of Christianity, had not only proved traitors to their banner, but had actually become Mohammedanized. On their expulsion from the Holy Land, at the close of the Crusades, they spread all over Europe, to disseminate by stealth their fearful heresies, and to enjoy the riches they had acquired in the service they had betrayed. Men find a charm in having it mysteriously and secretly divulged to them that their long-cherished opinions are all a delusion. There was something fascinating in hearing privately, from those who could speak with authority, that, after all, Mohammed was not an impostor, but the author of a pure and noble Theism; that Saladin was not a treacherous assassin, a despicable liar, but a most valiant, courteous, and gentle knight. In his proceedings against the Templars, King Philip the Fair seems to have been animated by a pure intention of checking the disastrous spread of their opinions; yet William de Nogaret, who was his chief adviser on this matter as on that of Boniface, was not without reasons of personal hatred. It was said that he divided his wrath between the Templars and the pope. They had had some connection with the burning of his father, and vengeance he was resolved to wreak upon them. Under color of the charges against them, all the Templars in France were simultaneously arrested in the dawn of one day, October 13, A.D. 1307, so well devised were the measures. The grand master, Du Molay, was secured, not, however, without some perfidy. Now were openly brought forward the charges which struck Europe with consternation. Substantiation of them was offered by witnesses, but it was secured by submitting the accused to torture. The grand master, Du Molay, at first admitted their guilt of the accusations alleged. After some hesitation, the pope issued a bull, commanding the King of England to do what the King of France had already done, to arrest the Templars and seize their property. His declaration, that one of the order, a man of high birth, had confessed to himself his criminality, seems to have made a profound impression on the mind of the English king, and of many other persons until that time reluctant to believe. The Parliament and the University of Paris expressed themselves satisfied with the evidence. New examinations were held, and new convictions were made. The pope issued a bull addressed to all Christendom, declaring how slowly, but, alas! how certainly, he had been compelled to believe in the apostasy of the order, and com-

*Apostasy of the
Templars.*

*They are arrest-
ed and tried.*

manding that every where proceedings should be instituted against it. A papal commission assembled in Paris, August 7, A.D. 1309. The grand master was had before it. He professed his belief in the Catholic faith, but now denied that the order was guilty of the charges alleged against it, as also did many of the other knights. Other witnesses were, however, brought forward, some of whom pretended to have abandoned the order on account of its foul acts. At the Porte St. Antoine, on many pleasant evenings in the following May, William de Nogaret reveled in the luxury of avenging the shade of his father. One hundred and thirteen Templars were, in slow succession, burned at stakes. Found guilty and punished. The remorseless lawyer was repaying the Church in her own coin. Yet of this vast concourse of sufferers all died protesting their innocence; not one proved an apostate. Notwithstanding this most significant fact—for those who were ready to lay down their lives, and to meet with unshaken constancy the fire, were surely the bravest of the knights, and their dying declaration is worthy of our most reverent consideration—things were such that no other course was possible than the abolition of the order, and this accordingly took place. The pope himself seems to have been satisfied that the crimes had been perpetrated under the instigation or temptation of Satan; but men of more enlarged views appear to have concluded that, though the Templars were innocent of the moral abominations charged against them, a familiarity with other forms of belief in the East had undoubtedly sapped their faith. After a weary imprisonment of six years, imbibed by many hardships, the grand master, Du Molay, was brought up for sentence. He had been found guilty. With his dying breath, “before Heaven and earth, on the verge of death, when the least falsehood bears like an intolerable weight on the soul,” he declared the innocence of the order and of himself. The vesper-bell was sounding when Du Molay and a brother convict were led forth to their stakes, placed on an island in the Seine. Burning of Du Molay. King Philip himself was present. As the smoke and flames enveloped them they continued to affirm their innocence. Some averred that forth from the fire Du Molay’s voice sounded, “Clement! thou wicked and false judge, I summon thee to meet me within forty days at the bar of God.” Some said that he also summoned the king. In the following year King Philip the Fair and Pope Clement the Fifth were both dead.

John XXII., elected after an interval of more than two years spent in rivalries and intrigues between the French and Italian cardinals, continued the residence at Avignon. His movements took a practical turn in the commencement of a process for the recovery of the treasures of Clement from the Viscount de Lomenie. This was only a part of the wealth of the deceased pope, but it amounted to a million and three quarters of florins of gold. The Inquisition was kept actively at work

for the extermination of the believers in "The Everlasting Gospel," and the remnant of the Albigenses and Waldenses. But all this had no other result than that which eventually occurred—an examination of the authenticity and rightfulness of the papal power. With an instinct as to the origin of the misbelief every where spreading, the pope published bulls against the Jews, of whom a bloody persecution had arisen, and ordered that all their Talmuds and other blasphemous books should be burned. A physician, Marsilio of Padua, published a work, *Marsilio's work, "The Defender of Peace."* "The Defender of Peace." It was a philosophical examination of the principles of government, and of the nature and limits of the sacerdotal power. Its democratic tendency was displayed by its demonstration that the exposition of the law of Christianity rests not with the pope nor any other priest, but with a general council; it rejected the papal political pretensions; asserted that no one can be rightfully excommunicated by a pope alone, and that he has no power of coercion over human thought; that the civil immunities of the clergy ought to be ended; that poverty and humility ought alone to be their characteristics; that society ought to provide them with a decent sustenance, but nothing more: their pomp, extravagance, luxury, and usurpations, especially that of tithes, should be abrogated; that neither Christ nor the Scriptures ever gave St. Peter a supremacy over the other apostles; that, if history was to be consulted, St. Paul, and not St. Peter, was bishop of Rome—indeed, it was doubtful whether the latter was ever in that city, the Acts of the Apostles being silent on that subject. From these and many other such arguments he drew forty-one conclusions adverse to the political and ecclesiastical supremacy of the pope.

It is not necessary to consider here the relations of John XXII. with Louis of Bavaria, nor of the antipope Nicholas; they belong merely to political history. But, as if to show how the intellectual movement was working its way, the pontiff himself did not escape a charge of heresy. Though he had so much of temporal affairs upon his hands, John did not hesitate to raise the great question of the "beatific vision." In his opinion, the dead, even the saints, do not enjoy the beatific vision of God until after the Judgment-day. At once there was a demand among the orthodox, "What! do not the apostles, John, Peter, nay, even the blessed Virgin, stand yet in the presence of God?" The pope directed the most learned theologians to examine the question, himself entering actively into the dispute. The University of Paris was involved. The King of France declared that his realm should not be troubled with such heretical disputes. A single sentence explains the the interests of the Church in the presence of God, of what of addressing prayers to caused by his age.

He was now nearly ninety years old. That he had not guided himself according to the prevailing sentiment of the lower religious orders, who thought that poverty was essential to salvation, appeared at his death, A.D. 1334. He left eighteen millions of gold florins in specie, and seven millions in plate and jewels.

His successor, Benedict XII., disposed of the question of the "beatific vision:" "It is only those saints who do not pass through Purgatory that immediately behold the Godhead." The pontificate of Benedict, which was not without many good features, hardly verified the expression with which he greeted the cardinals when they elected him, "You have chosen an ass." His was a gay life. There is a tradition that to him is due the origin of the proverb, "As drunk as a pope."

In the subsequent pontificate of Clement VI., A.D. 1342, the court at Avignon became the most voluptuous in Christendom. It was crowded with knights and ladies, painters and other artists. It exhibited a day-dream of equipages and banquets. The pontiff himself delighted in female society, but, in his weakness, permitted his lady, the Countess of Turenne, to extort enormous revenues by the sale of ecclesiastical promotions. Petrarch, who lived at Avignon at this time, speaks of it as a vast brothel. His own sister had been seduced by the holy father, John XXII. During all these years the Romans had made repeated attempts to force back the papal court to their city. With its departure all their profits had gone. But the fatal policy of electing Frenchmen into the College of Cardinals seemed to shut out every hope. The unscrupulous manner in which this was done is illustrated by the fact that Clement made one of his relatives, a lad of eighteen, a cardinal. For a time the brief glories of Rienzi cast a flickering ray on Rome; but Rienzi was only a demagogue—an impostor. It was the deep impression made upon Europe that the residence at Avignon was an abandonment of the tomb of St. Peter, that compelled Urban V. to return to Rome. This determination was strengthened by a desire to escape out of the power of the kings of France, and to avoid the free companies who had learned to extort bribes for sparing Avignon from plunder. He left Avignon, A.D. 1367, amid the reluctant grief of his cardinals, torn from that gay and dissipated city, and in dread of the recollections and of the populace of Rome. And well it might be so; for not only in Rome, but all over Italy, piety was held in no respect, and the discipline of the Church in derision. When Urban sent to Barnabas Visconti, who was raising trouble in Tuscany, a bull of excommunication by the hands of two legates, Barnabas actually compelled them, in his presence, to eat the parchment on which the bull was written, together with the leaden seal and the silken string, and, telling them that he hoped it would sit as lightly on their stomachs

as it did on his, sent them back to their master! In a little time—it was but two years—absence from France became insupportable; the pope returned to Avignon, and there died. It was reserved for his successor, Gregory XI., finally to end what was termed, from its The popes return to Rome. seventy years' duration, the Babylonish captivity, and restore the papacy to the Eternal City, A.D. 1376.

But, though the popes had thus returned to Rome, the effects of King Philip's policy still continued. On the death of Gregory XI., Causes of the great schism. the conclave, meeting at Rome—for the conclave must meet where the pope dies—elected Urban VI., under intimidation of the Roman populace, who were determined to retain the papacy in their city; but, escaping away to Fondi, and repenting what they had thus done, they proclaimed his election void, and substituted Clement VII. for him. They were actually at one time on the point of choosing the King of France as pope. Thus began the great schism. It was, in reality, a struggle between France and Italy for the control of the papacy. The former had enjoyed it for seventy years; the latter was determined to recover it. The schism thus rested originally on political considerations, but these were doubtless exasperated by the conduct of Urban, whose course was overbearing and even intolerable to his supporters. Nor did he amend as his position became more consolidated. In A.D. 1385, suspecting his cardinals of an intention to seize him, declare him a heretic, and burn him, he submitted several of them to the torture in his own presence, while he recited his breviary. Escaping from Nocera, where he had been besieged, he caused the Bishop of Aquila to be killed on the road-side. Others he tied in sacks, and threw into the sea at Genoa. It was supposed, not without reason, that he was insane.

If there had been formerly pecuniary difficulty in supporting one papal court, it, of course, became greater now that there were Pecuniary necessities of the rival popes. two. Such troubles, every day increasing, led at length to inauspicious political movements. There was an absolute necessity for drawing money to Rome and also to Avignon. The device of a jubilee was too transitory and inadequate, even though, by an improvement in the theory of that festival, it was expedited by thirty-three years, answering to our Savior's life. At Avignon, the difficulty of Clement, who was of amiable and polished manners, turned on the French Church being obliged to support him; and it is not to be wondered at that the French clergy looked with dislike on the pontifical establishment among them, since it was driven by its necessities to prey on all their best benefices. Under such circumstances, no other course was possible to the rival popes and their successors than a thorough reorganization of the papal Organization of simony. financial system—the more complete development of simony, indulgences, and other improper sources of emolument. In this manner Boniface IX. tripled the value of the annates upon the pa-

pal books. Usurers or brokers, intervening between the purchasers of benefices and the papal exchequer, were established, and it is said that, under the pressing difficulties of the case, benefices were known to have been sold, many times in succession, to different claimants in one week. Late applicants might obtain a preference for appointments on making a cash payment of twenty-five florins; an increased preference might be had for fifty. It became, at last, no unusual thing to write to kings and prelates for subsidies—a proof how greatly the papacy had been weakened by the events of the times.

But religious Europe could not bear with such increasing scandals. The rival popes were incessantly accusing each other of falsehood and all manner of wickedness. At length the public sentiment found its expression in the Council of Pisa, called by the cardinals on their own responsibility. This council summoned the two popes—Benedict XIII. and Gregory XII.—before it; declared the crimes and excesses imputed to them to be true, and deposed them both, appointing in their stead Alexander V. There were now, therefore, three Three popes. popes. But, besides thus rendering the position of things worse than it was before in this respect, the council had taken the still more extraordinary step of overthrowing the autocracy of the pope. It had been compelled by the force of circumstances to destroy the very foundation of Latin Christianity by assuming the position of superiority over the vicar of Christ. Now might be discerned by men of reflection the purely human nature of the papacy. It had broken down. Out of the theological disputes of preceding years a political principle was obviously emerging; the democratic spirit was developing itself, and the hierarchy was in rebellion against its sovereign.

Nor was this great movement limited to the clergy. In every direction the laity participated in it, pecuniary questions being in very many instances the incentive. Things had come to such a condition that it seemed to be of little moment what might be the personal character of the pontiff; the necessities of the position irresistibly drove him to replenish the treasury by shameful means. Thus, on Alexander's death, Balthazar Cossa, an evil but an able man, who succeeded as Balthazar Cossa made pope. John XXIII., was not only compelled to extend the existing simoniacal practices of the ecclesiastical brokers' offices, but actually to derive revenue from the licensing of prostitutes, gambling-houses, and usurers. In England, for ages a mine of wealth to Rome, the tendency of things was shown by such facts as the remonstrance of the Commons with the crown on the appointment of ecclesiastics to all the great offices; the allegations made by the "Good Parliament" Dissatisfaction in England. as to the amount of money drawn by Rome from the kingdom. They asserted that it was five times as much as the taxes levied by the king, and that the pope's revenue from England was greater than the revenue

of any prince in Christendom. It was shown again by such facts as the passage of the statutes of Mortmain, Provisors, and Præmunire, and by the universal clamor against the mendicant orders. This dissatisfaction with the clergy was accompanied by a desire for knowledge. Thousands of persons crowded to the universities both on the Continent and in England. In a community thus well prepared, Wiclif found no diff-

Wiclif, the English reformer.

culty in disseminating his views. He had adopted in many particulars the doctrines of Berengar. He taught that the bread in the Eucharist is not the real body of Christ, but only its image; that the Roman Church has no true claim to headship over other churches; that its bishop has no more authority than any other bishop; that it is right to deprive a delinquent Church of temporal possessions; that no bishop ought to have prisons for the punishment of those obnoxious to him; and that the Bible alone is a sufficient guide for a Christian

He translates the Bible.

man. His translation of the Bible into English was the practical carrying out of that assertion for the benefit of his own countrymen. All classes of society were becoming infected. The government for a season vacillated. It was said that every other man in England was a Lollard. The Lollards were Wiclifites. But the Church at last persuaded the government to let her try her hand, and the statute "de heretico comburendo" was passed, A.D. 1400. William Sautree, a

Burning of English heretics.

priest who had turned Wiclifite, was the first English martyr. John Badbee, a tailor, who denied transubstantiation—accused of having said that, if it were true, there were 20,000 gods in every corn-field in England—next suffered in like manner at the stake, in presence of the Prince of Wales. Lord Cobham, the head of the Lollards, who had denounced the pope as Anti-Christ, the Son of Perdition, was imprisoned; but escaping, became involved in political movements, and suffered at length the double penalty for heresy and treason, being hung on a gallows with a fire blazing at his feet. It is interesting to remark the social rank of these three early martyrs. Heresy was pervading all classes, from the lowest to the highest.

The Council of Constance met A.D. 1415. It had a threefold object: 1. The union of the Church under one pope; 2. The reformation of the clergy; 3. The suppression of heresy. Its policy from the first was determined. It proclaimed itself supreme. It demanded the abdication of the pope, John XXIII.; exhibited articles of accusation against him, some of them of such enormity as almost to pass belief, and justifying the epithet that he was "a devil incarnate." The suffrage of the council was changed. The plan of voting by nations, which reduced the Italians to a single vote, was introduced. These incidental facts may indicate to us that there were present men who understood thoroughly how to manage the machinery of such an assembly, and that the remark of Æneas Sylvius, afterward Pope Pius II., re-

The Council of Constance deposes the pope.

specting the Council of Basle was equally true as to that of Constance, that it was not so much directed by the Holy Ghost as by the passions of men. The influence that lawyers were now exercising in social affairs—their habits of arrangement, of business, and intrigue, is strikingly manifested in the management of these assemblages; their arts had passed to the clergy, and even in part to the people. But how vast was the change that had occurred in the papacy from the voluntary abdication of Celestine to the compulsory abdication of John!

To this council, also, came John Huss, under a safe-conduct from the Emperor Sigismund. Scarcely, however, had he arrived when he was imprisoned, this treachery being excused from the ne-^{and murder}
^{John Huss.}cessity of conceding it to the reforming party. On June 5th, A.D. 1416, Huss was brought in chains before the council. It was declared unlawful to keep faith with a heretic. His countrymen, the Bohemian lords present, protested against such a perfidy, and loudly demanded his release. Articles of accusation, derived from his works, were presented. He avowed himself ready to defend his opinions. The uproar was so great that the council temporarily adjourned. Two days after the trial was resumed. It was ushered in by an eclipse of the sun, said to have been total at Prague. No one of the bloodthirsty ecclesiastics laid to heart the solemn monition that, after his moment of greatest darkness was over, the sun shone forth with recovered effulgence again. The emperor was present, with all the fathers. The first accusation entered on related to transubstantiation. On this and on succeeding occasions the emperor took part in the discussions, among other things observing that, in his opinion, the prisoner was worthy of death. After a lengthy inquiry into his alleged errors, a form of recantation was prepared for Huss. With a modest firmness he declined it, concluding his noble answer with the words, "I appeal to Christ Jesus, the one all-^{Noble conduct}
^{of Huss.}powerful and all-just Judge. To him I commend my cause, who will judge every man, not according to false witnesses and erring councils, but according to truth and man's desert." On July 1st the council met in full session. Thirty articles against Huss were read. Among other things, they alleged that he believed the material bread to be unchanged after the consecration. In his extremity the prisoner looked steadfastly at the traitor Sigismund, and solemnly exclaimed, "Freely came I here under the safe-conduct of the emperor." The conscience-stricken monarch blushed. Huss was then made to kneel down and receive his sentence. It condemned his writings and his body to the flames.

He was then degraded and despoiled of his orders. Some of the bishops mocked at him; some, more merciful, implored him to recant. They cut his hair in the form of a cross, and set upon his head a high paper crown on which devils were painted. "We devote thy soul to the devils

in hell." "And I commend my soul to the most merciful Lord Christ Jesus." He was then led forth. They passed by the bishop's palace, where Huss's books were burning. As they tied him with a piece of chain to his stake, the painted crown fell off, but the soldiers replaced it. "Let him and his devils be burned together." As the flames closed over him, he chanted psalms and prayed to the Redeemer. He is burned. Can that be true which requires for its support the murder of a true man?

So acted, without a dissenting voice, the Council of Constance. It feared the spread of heresy, but it did not fear, perhaps did not consider that higher tribunal to whose inexorable verdict councils, and popes, and emperors must submit—posterity. It asserted itself to be under the inspiration of the Holy Ghost. It took profit by a shameful perfidy. It was a conclave of murderers. It stifled the voice of an earnest man, solemnly protesting against a doctrine now derided by all Europe. The revolution it was compassing it inaugurated in blood, not alone that of John Huss, but also of Jerome of Prague. These martyrs were no common men. Poggio Bracciolini, an eye-witness, says, in a letter to Leonardo Aretino, speaking of the eloquence of Jerome, "When I consider what his choice of words was, what his elocution, what his reasoning, what his countenance, his voice, his action, I must affirm, however much we may admire the ancients, that in such a cause no one could have approached nearer to the model of their eloquence."

John XXIII. was compelled to abdicate. Gregory XII. died. Some time after, Benedict XIII. followed him. The council had elected Martin V., and in him found a master who soon put an end to its attempts. It had deposed one pope and elected another; it had cemented the dominant creed with blood; it had authorized the dreadful doctrine that a difference in religious opinion justifies the breaking of plighted faith between man and man; it had attempted to perpetuate its own power by enacting that councils should be held every five years; but it had not accomplished its great object—ecclesiastical reform.

In a room attached to the Cathedral of Basle, with its roof of green and party-colored tiles, the modern traveler reads on a piece of paper this inscription: "The room of the council, where the famous Council of Basil was assembled. In this room Pope Eugene IV. was dethroned, and replaced by Felix V., Duc of Savoie and Cardinal of Repaille. The council began 1431, and lasted 1448." That chamber, with its floor of little red earthen flags and its oaken ceiling, witnessed great events.

The democratic influence pervading the Church showed no symptoms of abatement. The fate of Huss had been avenged in blood and fire by the Bohemian sword. Eugenius IV., now pontiff, was afraid that negotiations would be entered into with the Hussite chiefs. Such a treaty,

he affirmed, would be blasphemy against God and an insult to the pope. He was therefore bent on the prorogation of the council, and spared no means to accomplish his purpose. Its ostensible object was the reformation of the clergy; its real intent was to convert the papal autocracy into a constitutional monarchy. To this end it cited the pope, and, on his non-appearance, declared him and seventeen of the cardinals in contumacy. He had denounced it as the Synagogue of Satan; on its part, it was assuming the functions of the Senate of Christendom. It had prepared a great seal, and asserted that, in case of the death of the pope, the election of his successor was vested in it. It was its firm purpose never again to leave that great event in the hands of a conclave of intriguing Italian cardinals, but to intrust it to the representatives of united Christendom. After a due delay since he was declared in contumacy, the council suspended the pope, and, slowly moving toward its object, elected Amadeus of Savoy, Felix V., his successor. It was necessary that its pope should be a rich man, for the council had but slender means of offering him pecuniary support. Amadeus had that qualification. And perhaps it was far from being, in the eyes of many, an inopportune circumstance that he had been married and had children. We may discern, through the shifting scenes of the intrigues of the times, that the German hierarchy had come to the resolution that the election of the pope should be taken from the Italians and given to Europe; that his power should be restricted; that he should no longer be the irresponsible vicar of God upon earth, but the accountable chief executive officer of Christendom; and that the right of marriage should be conceded to the clergy. These are significantly Teutonic ideas.

It declares the pope in contumacy.

Its real intentions.

We have pursued the story of these events nearly as far as is necessary for the purpose of this book. We shall not, therefore, follow the details of the new schism. It fell almost without interest on Europe. Aeneas Sylvius, the ablest man of the day, in three words gives us the true insight into the state of things: "Faith is dead." On the demise of Eugenius IV., Nicolas V. succeeded. An understanding was had with those in the interest of the council. It was dissolved. Felix V. abdicated. The morality of the times had improved. The antipope was neither blinded nor murdered. The schism was at an end.

Cause and close of these troubles.

Thus we have seen that the personal immoralities and heresy of the popes brought on the interference of the King of France, who not only shook the papal system to its basis, but destroyed its prestige by inflicting the most conspicuous indignity upon it. For seventy years Rome was disfranchised, and the rivalries of France and Italy produced the great schism, than which nothing could be more prejudicial to the papal power. We have seen that, aided by the pecuniary difficulties of the papacy, the rising intellect of Europe made good its

End of the intellectual influence of the papacy.

influence, and absolutely deposed the pope. It was in vain to deny the authenticity of such a council; there stood the accomplished fact. At this moment there seemed no other prospect for the Italian system than utter ruin; yet, wonderful to be said, a momentary deliverance came from a quarter whence no man would have expected. The Turks were the saviors of the papacy.

At this point is the true end of the Italian system—that system which had pressed upon Europe like a nightmare. The great men of the times—the statesmen, the philosophers, the merchants, the lawyers, the governing classes—they whose weight of opinion is recognized by the uneducated people at last, had shaken off the incubus and opened their eyes. A glimmering of the true state of things was breaking upon the clergy. No more with the vigor it once had possessed was the papacy again to domineer over human thought and be the controlling agent of European affairs. Convulsive struggles it might make, but they were only death-throes. The sovereign pontiff must now descend from the autocracy he had for so many ages possessed, and become a small potentate, tolerated by kings in that subordinate position only because of the remnant of his influence on the uneducated multitude and those of feeble minds.

CHAPTER XVIII.

THE AGE OF FAITH IN THE WEST—(Concluded).

EFFECT OF THE EASTERN OR MILITARY ATTACK.—GENERAL REVIEW OF THE AGE OF FAITH.

The Fall of Constantinople.—Its momentary Effect on the Italian System.

GENERAL REVIEW OF THE INTELLECTUAL CONDITION IN THE AGE OF FAITH.—*Supernaturalism and its Logic spread all over Europe.—It is destroyed by the Jews and Arabians.—Its total Extinction.*

The Jewish Physicians.—Their Acquirements and Influence.—Their Collision with the Imposture-medicine of Europe.—Their Effect on the higher Classes.—Opposition to them.

Two Impulses, the Intellectual and Moral, operating against the Mediæval state of Things.—Downfall of the Italian System through the intellectual Impulse from the West and the moral from the North.—Action of the former through Astronomy.—Origin of the moral Impulse.—Their conjoint irresistible Effect.—Discovery of the state of Affairs in Italy.—The Writings of Machiavelli.—What the Church had actually done.

Entire Movement of the Italian System determined from a consideration of the four Revolts against it.

FROM the West I have now to return to the East, and to describe the pressure made by Mohammedanism on that side. It is illustrated by many great events, but, above all, by the loss of Constantinople. The Greek Church, so long out of sight that it is perhaps almost forgotten by the reader, comes for a moment before us like a spectre from the dead.

The Eastern pressure.

A wandering tribe of Turks had found its way into Asia Minor, and, under its leader Ertogrul and his son Othman, consolidated its power and commenced extending its influence by possessions ^{Appearance of the Turks.} taken from the sultans of Iconium and the Byzantine empire. The third prince of the race instituted the Janissaries, a remarkable military force, and commenced driving the Greeks out of Asia Minor. His son Soliman crossed the Hellespont and captured Gallipoli, thus securing a foothold in Europe, A.D. 1358.

This accomplished, the Turkish influence began to extend rapidly. Thrace, Macedon, and Servia were subdued. Sigismund, ^{Extension of their power in Europe.} the King of Hungary, was overthrown at the battle of Nicopolis by Bajazet. Southern Greece, the countries along the Danube, submitted, and Constantinople would have fallen had it not been for the unexpected irruption of Tamerlane, who defeated Bajazet and took him prisoner. The reign of Mohammed I., who succeeded, was occupied in the restoration of Turkish affairs. Under Amurath II., possession of the Euxine shore was obtained, the fortifications across the Isthmus of Corinth were stormed, and the Peloponnesus entered.

Mohammed II. became the Sultan of the Turks A.D. 1451. From the moment of his accession, he turned all his powers to the capture of Constantinople. Its sovereigns had long foreseen the inevitable event, and had made repeated attempts to secure military aid from ^{The Byzantine sovereigns apply to the West.} the West. They were ready to surrender their religious belief. On this principle, the monk Barlaam was dispatched on an embassy to Benedict XII. to propose the reunion of the Greek and Latin churches, as it was delicately termed, and to obtain, as an equivalent for the concession, an army of Franks. As the danger became more urgent, John Palæologus I. sought an interview with Urban V., and, having been purified from his heresies respecting the supremacy of the pope and the double procession of the Holy Ghost, was presented before the pontiff in the Church of St. Peter. The Greek monarch, after three genuflexions, was permitted to kiss the feet of the holy father and to lead by its bridle his mule. But, though they might have the will, the popes had lost the power, and these great submissions were productive of no good. Thirty years subsequently, Manuel, the son and successor of Palæologus, took what might have seemed a more certain course. He traveled to Paris and to London to lay his distress before the kings of France and England, but he received only pity, not aid. At the Council of Constance Byzantine ambassadors appeared. It was, however, reserved for the synods of Ferrara and of Florence to mature, as far as might be, the negotiation. The second John Palæologus journeyed again into Italy, A.D. 1438; and while Eugenius was being deposed in the chamber at Basle, he was consummating the union of the East and the West in the Cathedral of Florence. In the pulpit of that edifice, on the sixth of July of

The Greek Church yields to the Latin. that year, a Roman cardinal and a Greek archbishop embraced each other before the people; *Te Deum* was chanted in Greek, mass was celebrated in Latin, and the Creed was read with the "*Filioque*." The successor of Constantine the Great had given up his religion, but he had received no equivalent—no aid. The state of the Church, its disorders and schisms, rendered any community of action in the West impossible.

The last, the inevitable hour at length struck. Mohammed II. is said Mohammed II. to have been a learned man, able to express himself in five different languages; skillful in mathematics, especially in their practical application to engineering; an admirer of the fine arts; prodigal in his liberality to Italian painters. In Asia Minor, as in Spain, there was free thinking among the disciples of the Prophet. It was affirmed that the sultan, in his moments of relaxation, was often heard to deride the religion of his country as an imposture. His doubts in that particular were, however, compensated for by his determination to carry out the intention of so many of his Mohammedan predecessors—the seizure of Constantinople.

The siege of Constantinople. At this time the venerable city had so greatly declined that it contained only 100,000 inhabitants—out of them only 4970 able or willing to bear arms. The besieging force was more than a quarter of a million of men. As Mohammed pressed on his works, the despairing emperor in vain looked for the long-promised effectual Western aid. In its extremity, the devoted metropolis was divided by religious feuds; and when a Latin priest officiated in St. Sophia, there were many who exclaimed that they would rather see the turban of the sultan than the tiara of the pope. In several particulars the siege of Constantinople marked out the end of old ages and the beginning of new. Its walls were shaken by the battering-rams of the past, and overthrown by cannon, just then coming into general use. Upon a plank road, shipping were passed through the open country, in the darkness of a single night, a distance of ten miles. The works were pushed forward toward the walls, on the top of which the pacing sentinel at length could hear the shouts of the Turks by their nocturnal fires. They were sounds such as Constantinople might well listen to. She had taught something different for many a long year. "God is God; there is but one God." In the streets an image of the Virgin was carried in solemn procession. Never or now she must come to the help of those who had done so much for her, who had made her a queen in heaven and a goddess upon earth. The cry of her worshipers was in vain.

On May 29th, 1453, the assault was delivered. Constantine Palæologus, the last of the Roman emperors, putting off his purple, that no man might recognize and insult his corpse when the catastrophe was over, fell, as became a Roman emperor, in the breach. After his death resist-

ance ceased, and the victorious Turks poured into the town. Fall of the city. To the Church of St. Sophia there rushed a promiscuous crowd of women and children, priests, monks, religious virgins, and—men. Superstitious to the last, in this supreme moment they expected the fulfillment of a prophecy that, when the Turks should have forced their way to the square before that church, their progress would be arrested, for an angel with a sword in his hand would descend from heaven and save the city of the Lord. The Turks burst into the square, but the angel never came.

More than two thirds of the inhabitants of Constantinople were carried prisoners into the Turkish camp—the men for servitude, the women for a still more evil fate. The churches were sacked. From the dome of St. Sophia its glories were torn down. The divine images, for the sake of which Christendom had been sundered in former days, unresistingly submitted to the pious rage of the Mohammedans without working a single miracle, and, stripped of their gems and gold, were brought to their proper value in the vile uses of kitchens and stables. On that same day the muezzin ascended the loftiest turret of St. Sophia, and over the City of the Trinity proclaimed the Oneness of God. The sultan performed his prayers at the great altar, directing the edifice to be purified from its idolatries and consecrated to the worship of God. Thence he repaired to the palace, and, reflecting on the instability of human prosperity, repeated, as he entered it, the Persian verse: "The spider has woven his web in the imperial palace; the owl hath sung her watch-song on the towers of Afrasiab."

This solemn event—the fall of Constantinople—accomplished, there was no need of any reconciliation of the Greek and Latin churches. The sword of Mohammed had settled their dispute. Constantinople had submitted to the fate of Antioch, Jerusalem, Alexandria, Carthage. Christendom was struck with consternation. The advance Terror of Christendom at the fall of Constantinople. of the Turks in Europe was now very rapid. Corinth and Athens fell, and the reduction of Greece was completed. The confines of Italy were approached A.D. 1461. The Mohammedan flag confronted that peninsula along the Adriatic coast. In twenty years more Italy was invaded. Otranto was taken; its bishop killed at the door of his church. At this period, it was admitted that the Turkish infantry, cavalry, and artillery were the best in the world. Soliman the Magnificent took Belgrade A.D. 1520. Nine years afterward Progress of the Turks. the Turks besieged Vienna, but were repulsed. Soliman now prepared for the subjugation of Italy, and was only diverted from it by an accident which turned him upon the Venetians. It was not until the battle of Lepanto that the Turkish advance was fairly checked. Even as it was, in the complicated policy and intrigues of Europe its different sovereigns could not trust one another; their common faith had ceased to be a common bond; in all it had been weakened, in some destroyed.

Æneas Sylvius, speaking of Christendom, says, "It is a body without a head, a republic without laws or magistrates. The pope or the emperor may shine as lofty titles, as splendid images; but they are unable to command, and no one is willing to obey." But, during this period of Turkish aggression, had not the religious dissensions of Christendom been decently composed, there was imminent danger that Europe would have been Mohammedanized. A bitter experience of past ages, as well as of the present, had taught it that the Roman Church was utterly powerless against such attacks. Safety was to be looked for, not in any celestial aid, but in physical knowledge and pecuniary resources, carried out in the organization of armies and fleets. Had her authority been derived from the source she pretended, she should have found an all-sufficient protection in prayer—indeed, not even that should have been required. Men discovered at last that her Litanies and her miracles were equally of no use, and that she must trust, like any other human tyranny, to cannon and the sword.

The Turkish aggression led to the staying of the democratic outbreak in the bosom of the Church—the abstaining for a season from any farther sap of the papal autocracy. It was necessary that ecclesiastical disputes, if they could not be ended, should, at all events, be kept for a time in abeyance, and so indeed they were, until the pent-up dissensions burst forth in "the Reformation." And thus, as we have related, by Mohammedan knowledge in the West papal Christianity was well-nigh brought to ruin; thus, by a strange paradox, the Mohammedan sword in the East gave it for a little longer a renewed lease of political power, though never again of life.

To Nicolas V., a learned and able pope, the catastrophe of Constantinople was the death-blow. He had been the intimate friend of Cosmo de' Medici, and from him had imbibed a taste for letters and art, but, like his patron, he had no love for liberty. It was thus through commerce that the papacy first learned to turn to art. The ensuing development of Europe was really based on the commerce of upper Italy, and not upon the Church. The statesmen of Florence were the inventors of the balance of power. A lover of literature, Nicolas was the founder of the Vatican Library. He clearly perceived the only course in which the Roman system could be directed; that it was unfit for, and, indeed, incompatible with science, but might be brought in unison with art. Its influence upon the reason was gone, but the senses yet remained for it. In continuing his policy, the succeeding popes acted with wisdom. They gratified the genius of their institutions, of their country, and their age. In the abundant leisure of monasteries, the monks had found occupation in the illumination of manuscripts. From the execution of miniatures they gradually rose to an undertaking of greater v In that manner painting had originated

Effect of the
Turkish in-
vasion.

Nicolas V. a
patron of art.

Gradual rise of
the fine arts.

in Italy in the twelfth century. Sculpture, at first merged in architecture, had extricated herself from that bondage in the fourteenth. The mendicant orders, acquiring wealth, became munificent patrons. From caligraphic illustrations to the grand works of Michael Angelo and Raffaele is a prodigious advance, yet it took but a short time to accomplish it.

I have now completed the history of the European Age of Faith as far as is necessary for the purposes of this book. It embraces a period of more than a thousand years, counting from the reign of Constantine. It remains to consider the intellectual peculiarity that marks the whole period—to review briefly the agents that exerted an influence upon it and conducted it to its close.

Philosophically, the most remarkable peculiarity is the employment of a false logic, a total misconception of the nature of evidence. It is illustrated by miracle-proofs, trial by battle, or deal tests, and a universal belief in supernatural agency even for objectless purposes. On the principles of this logic, if the authenticity of a thing or the proof of a statement be required, it is supposed to be furnished by an astounding illustration of something else. If the character of a princess is assailed, she offers a champion, he proves victorious, and therefore she was not frail. If a national assembly, after a long discussion, can not decide "whether children should inherit the property of their father during the lifetime of their grandfather," an equal number of equal combatants is chosen for each side; they fight; the champions of the children prevail, and therefore the law is fixed in their favor. A relic of some martyr is bought at a great price; no one seeks to criticise the channel through which it has come, but every one asks, Can it work a miracle? A vast institution demands the implicit obedience of all men. It justifies its claim, not by the history of the past, but by promises and threats of the future. A decrepit crone is suspected of witchcraft. She is stripped naked and thrown into the nearest pond: if she sinks, she is innocent; if she swims, she is in commerce with the Devil. In all such cases the intrinsic peculiarity of the logic is obvious enough; it shows a complete misconception of the nature of evidence. Yet this ratiocination governed Europe for a thousand years, giving birth to those marvelous and supernatural explanations of physical phenomena and events on which we now look back with unfeigned surprise, half disbelieving that it was possible for our ancestors to have credited such things. Against this preposterous logic the Mohammedans and Jews struck the first blows. We have already heard what Algazzali the Arabian says respecting the enchanter who would prove that three is greater than ten by changing a stick into a serpent. The circumstances under which the Jewish physicians acted we shall consider presently.

*Review of the
Age of Faith.*

*Philosophical pe-
culiarities of the
Age of Faith.*

*The character
of its logic.*

*Its adoption
of supernat-
uralism.*

*The Jews and
Saracens de-
stroy super-
naturalism.*

It will not be useless to devote a little space to this belief in the supernatural. It offers an opportunity of showing how false notions may become universal, imbody themselves in law and practical life, and, wonderful to be said, how they may, without any thing being done to destroy them, vanish from sight of themselves, like night-spectres before the day. At present we only encounter them among the lowest peasant grades, or those who have purposely been kept in the most abject state of ignorance. Less than a century ago the clergy of Spain wished to have the Opera prohibited, because that ungodly entertainment had given rise to a want of rain; but now, in a country so intellectually backward as that—a witch was burned there so lately as A.D. 1781—such an attempt would call up sly wit, and make the rabble of Madrid suspect that the archbishop was smarting under the rivalry of the prima donna, and that he was furbishing up the rusty ecclesiastical enginery to sustain his cause.

In the day of their power the ecclesiastical profession were the supporters of this delusion. They found it suitable to their interests, and, by dint of at first persuading others to believe, they at last, by habit, came to believe in it themselves. The Mohammedans and Jews were the first to assail it philosophically and by sarcasm, but its final ruin was brought about by the action of the two other professions, the legal and the medical. The lawyers, whose advent to power is seen in the history of Philip the Fair, and whose rise from that time was very rapid, were obliged to introduce the true methods of evidence; the physicians, from their pursuits, were perpetually led to the material explanation of natural phenomena in contradistinction to the mystical. It is to the honor of both these professions that they never sought for a perpetuation of power by schemes of vast organization, never attempted to delude mankind by stupendous impostures, never compelled them to desist from the expression of their thoughts, and even from thinking, by alliances with civil power. Far from being the determined antagonists of human knowledge, they uniformly fostered it, and, in its trials, defended it. The lawyers were hated because they replaced supernatural logic by philosophical logic; the physicians, because they broke down the profitable but mendacious system of miracle-cures by relics and at shrines.

Yet the Church is not without excuse. In all her varied history it was impossible to disentangle her from the principles which at the beginning had entered into her political organization. For good or evil, right or wrong, her necessity required that she should put herself forth as the possessor of all knowledge within the reach of human intellect—the infallible arbitress of every question that could arise among men. Doubtless it did imposture, capable for a time of yielding great later certain to be unmasked.

Respective influence of the clergy, the lawyers, and physicians.

Position of the Church.

Early discovering the antagonism of science, which could not fail, in due season, to subject her pretensions to investigation, she lent herself to a systematic delusion of the illiterate, and thereby tried to put off that fatal day when creeds engendered in the darkness would have to be examined in the light, enforcing her attempt with an unsparing, often with a bloody hand. It was for this reason that, when the inevitable time of trial came, no intellectual defense could be made in her behalf, and hence there only remained a recourse to physical and political compulsion. But such a compulsion, under such circumstances, is not only a testimony to the intrinsic weakness of that for which it is invoked, it is also a token that they who resort to it have lost all faith in any inherent power of the system they are supporting, and that, in truth, it is fast coming to an end.

She could not extricate herself from her false position.

The reader will remark, from the incidents connected with supernatural delusions now to be related, that they follow a law of continuous variation, the particular imbodiment they assumed changing with the condition of the human mind at each epoch under examination. For ages they are implicitly believed in by all classes; then to a few, but the number perpetually increasing, they become an idle story of barefaced imposture. At last humanity awakens from its delusion—its dream. The final rejection of the whole, in spite of the wonderful amount of testimony which for ages had accumulated, occurs spontaneously the moment that psychical development has reached a certain point. There can be no more striking illustration of the definite advancement of the human mind. The boy who is terror-stricken in a dark room insensibly dismisses his idle fears as he grows up to be a man.

Clemens Romanus and Anastasius Sinaita, speaking of Simon Magus, say that he could make himself invisible; that he formed a man out of air; that he could pass bodily through mountains without being obstructed thereby; that he could fly and sit unharmed in flames; that he constructed animated statues and self-moving furniture, and not only changed his countenance into the similitude of many other men, but that his whole body could be transformed into the shape of a goat, a sheep, a snake; that, as he walked in the street, he cast many shadows in different directions; that he could make trees suddenly spring up in desert places; and, on one occasion, compelled an enchanted sickle to go into a field and reap twice as much in one day as if it had been used by a man. Of Apollonius of Tyana we are told that, after an unbroken silence of five years, he comprehended the languages of all animals and all men; that, under circumstances very picturesquely related, he detected the genius of a plague at Ephesus, and dragged him, self-convicted, before the people; that, at the wedding-dinner of Menippus, he caused all the dishes and viands to vanish, thereby compelling the bride to acknowledge that she was a vam-

Successive order in supernatural ideas.

Oriental magicians—Simon Magus.

Greek thanaturgists.

pire, intending to eat the flesh and lap the blood of her husband in the night; that he exhibited the prodigy of being in many places at the same time; raised a young woman from the dead; and, finally, weary of the world, ascended bodily into heaven.

As Arabian influence spread, ideas of an Oriental aspect appear.
Introduction of an Arabian element. There are peris who live on perfumes, and divs who are poisoned by them; enchanted palaces; moving statues; veiled

prophets, like Mokanna; brazen flying horses; charmed arrows; dervises who can project their soul into the body of a dead animal, giving it temporary life; enchanted rings, to make the wearer invisible, or give him two different bodies at the same time; ghouls who live in cemeteries, and at night eat the flesh of dead men. As the European counterpart of these Perso-Arabic ideas, there are fairies, and their dancing by moonlight, their tampering with children, and imposing changelings on horror-stricken mothers. Every one believes that rain and wind may

Introduction of European sorcery and witchcraft. be purchased of wizards, and that fair weather may be obtained and storms abated by prayer. Whoever attains to

wealth or eminence does so by a compact with Satan, signed with blood. The head of the Church, Sylvester II., makes a brazen head, which speaks to him prophetically. He finds underground treasures in a subterraneous magic palace beneath a mountain. The protestator of the Greek emperor is accused of a conspiracy against his master's life by making invisible men. Robert Grosseteste, the Bishop of Lincoln, makes another speaking head. Nay, more, Albertus Magnus constructs a complete brazen man so cunningly contrived as to serve him for a domestic. This was at the time that Thomas Aquinas was living with him. The household trouble arising from the excessive garrulity of this simulacrum grew so intolerable—for he was incessantly making mischief among the other inmates—that Thomas, unable to bear it any longer, took a hammer and broke the troublesome android to pieces. This rev-

These ideas infect all classes. erend father, known among his contemporaries as the "se-

raphie doctor," was not without experience in the mysterious craft. Annoyed by the frequent passing of horses near his dwelling, he constructed a magical horse of brass, and buried it in the road. From that moment no animal could be made to pass his door. Among brazen heads of great celebrity is that of Friar Bacon and Friar Bungy. This oracle announced, "Time is; time was; time is passed;" but perhaps it was some kind of clock. The alchemist Peter d'Apono had seven spirits in glass bottles. He had entrapped them by baiting with distilled dew, and imprisoned them safely by dexterously putting in the corks. He is the same who possessed a secret which it is greatly to be regretted that he did not divulge for the benefit of chemists who have come after him, that, whatever money he paid, within the space of one hour's time came back of itself again into his pocket. That was even better than the philosopher's stone.

These supernatural notions were at different times modified by two intrusive elements, the first being the Perso-Arabic just al-
 luded to, the second derived from the north of Europe. This Modifications of supernaturalism.
 element was witchcraft; for, though long before, among Hebrews, Greeks, and Romans, decrepit women were known as witches—as the Thessalian crone who raised a corpse from the dead for Sextus by lashing it with a snake—it was not until a later period that this element was fairly developed. A bull of Pope Innocent VIII., published A.D. 1484, says, “It has come to our ears that numbers of both sexes do not avoid to have intercourse with the infernal fiends, and that by their sorceries they afflict both man and beast. They blight the marriage-bed; destroy the births of women and the increase of cattle; they blast the corn on the ground, the grapes in the vineyard, the fruits of the trees, and the grass and herbs of the field.” At this time, therefore, the head of the Church had not relinquished a belief in these delusions. The consequences of the punishment he ordained were very dreadful. In the valleys of the Alps many hundred aged women were committed to the flames under an accusation of denying Christ, dishonoring the crucifix, and solemnizing a devil’s sabbath in company with the fiend. Such persecutions, begun by papal authority, continued among illiterate zealots till late times, and, as is well known, were practiced even in America. Very masculine minds fell into these delusions. Thus Luther, in his work on the abuses attendant on private masses, says that he had conferences with the Devil on that subject, passing many bitter nights and much restless and wearisome repose; that once, in particular, Satan came to him in the dead of the night, when he was just awakened out of sleep. “The Devil,” says Luther, “knows well enough how to construct his arguments, and to urge them with the skill of a master. He delivers himself with a grave and yet with a shrill Experiences of Luther. voice. Nor does he use circumlocutions and beat about the bush, but excels in forcible statements and quick rejoinders. I no longer wonder that the persons whom he assails in this way are occasionally found dead in their beds. He is able to compress and throttle, and more than once he has so assaulted me and driven my soul into a corner, that I felt as if the next moment it must leave my body. I am of opinion that Gesner and Ecolampadius came in that manner to their deaths. The Devil’s manner of opening a debate is pleasant enough, but he soon urges things so peremptorily that the respondent in a short time knows not how to acquit himself.”

Social eminence is no preservative from social delusion. When it was affirmed that Agnes Sampson, with two hundred other English wizards —Scotch witches.
 Scotch witches, had sailed in sieves from Leith to North Berwick church to hold a banquet with the Devil, James I. had the torture applied to the wretched woman, and took pleasure in putting appropri-

ate questions to her after the racking had been duly prolonged. It then came out that the two hundred crones had baptized and drowned a black cat, thereby raising a dreadful storm, in which the ship that carried the king narrowly escaped being wrecked. Upon this Agnes was condemned to the flames. She died protesting her innocence, and piteously calling on Jesus to have mercy on her, for Christian men would not. On the accession of James to the English throne he procured an act of Parliament against any one convicted of witchcraft, sorcery, or enchantment, or having commerce with the Devil. Under this monstrous statute many persons suffered. At this time England was intellectually very backward. The statute remained until 1736 unrepealed. The French preceded the English in putting a stop to these atrocities; for Louis XIV., A.D. 1672, by an order in council, forbade the tribunals from inflicting penalty in accusations of sorcery.

French and
English legal
proceedings.

Can the reader of the preceding paragraphs here pause without demanding of himself the value of human testimony? All these delusions, which occupied the minds of our forefathers, and from which not even the powerful and learned were free, have totally passed away. The moonlight has now no fairies; the solitude no genius; the darkness no ghost, no goblin. There is no necromancer who can raise the dead from their graves—no one who has sold his soul to the Devil and signed the contract with his blood—no angry apparition to rebuke the crone who has disquieted him. Divination, agromancy, pyromancy, hydromancy, cheiromancy, augury, interpreting of dreams, oracles, sorcery, astrology, have all gone. It is 350 years since the last sepulchral lamp was found, and that was near Rome. There are no gorgons, hydras, chimæras; no familiars; no incubus or succubus. The housewives of Holland no longer bring forth sooterkins by sitting over lighted chauffers. No longer do captains buy of Lapland witches favorable winds; no longer do our churches resound with prayers against the baleful influences of comets, though there still linger in some of our noble old rituals forms of supplication for dry weather and rain, useless but not unpleasing reminiscences of the past. The apothecary no longer says prayers over the mortar in which he is pounding to impart a divine afflatus to his drugs. Who is there now that pays fees to a relic or goes to a saint-shrine to be cured? These delusions have vanished with the night to which they appertained, yet they were the delusions of fifteen hundred years. In their support might be produced a greater mass of human testimony than probably could be brought to bear on any other matter of belief in the entire history of man; and yet, in the nineteenth century, we have come to the conclusion that the whole, from the beginning to the end, was a deception! Let him, therefore, who is disposed to rely on the testimony of past ages against the

Value of human
testimony.

dictates of his own reason ponder on this strange history; let him who relies on the authority of human evidence in the guidance of his opinions now settle with himself what that evidence is worth.

But, though in one sense this history is humiliating to the philosopher, in another it is full of interest. Supernaturalism, both in the individual and in society, appertains to a definite period of life. It ^{Supernaturalism appertains to a period of life.} is shaken off as men and nations approach maturity. The child and the youth people solitude and darkness with unrealities. The adult does not so much convince himself of their fictitious nature by reasoning on the results of his experience—he grows out of them, as we see that society has done. Nevertheless, his emancipation is quickened if he is among those who instruct his curiosity and deride his fears. It was in this manner that the decline of supernaturalism in the West was very much accelerated by Jewish physicians. They, more than the lawyers, were concerned in the ending of these delusions. The apparitions, as is the nature of their kind, vanished away as soon as the crowing of the Æsculapian cock announced that the intellectual day of Europe was on the point of breaking. The Jews held in their hands much ^{Influence of the Jews on supernaturalism.} of the trade of the world; they were in perpetual movement and commercial intercommunication. Locomotion—for such is always its result—tended to make them intellectual. The persecutions under which they had long suffered bound their distant communities together. The Spanish Jews knew very well what was going on among their co-religionists beyond the Euphrates. As Cabanis says, "They were our factors and bankers before we knew how to read; they were also our first physicians." To this it may be added that they were, for centuries together, the only men in Europe who saw the course of human affairs from the most general point of view.

The Hellenizing Jewish physicians inoculated the Arabs with learning on their first meeting with them in Alexandria, obtaining a private and personal influence with many of the khalifs, and from that central point of power giving an intellectual character to the entire Saracenic movement. We have already seen that in this they were greatly favored by the approximation of their unitarianism to that of the Mohammedans. The intellectual activity of the Asiatic and African Jews soon communicated an impulse to those of Europe. The Hebrew doctor was viewed by the vulgar with wonder, and fear, and hatred; no crime could be imputed to him too incredible. Thus Zedekias, the physician to Charles the Bald, was asserted to have devoured at one meal, in the presence of the court, a wagon-load of hay, together with its horses and driver. The titles of some of the works that appeared among them deserve mention, as displaying a strong contrast with the mystical designations in vogue. Thus Isaac Ben Soleiman, an Egyptian, wrote ^{Writings of Jewish physicians.} "On Fevers," "On Medicine," "On Food and Remedies,"

"On the Pulse," "On Philosophy," "On Melancholy," "An Introduction to Logic." The simplicity of these titles displays an intellectual clearness and precision of thought which have ever been shown by the Israelites. They are in themselves sufficient to convince us of the strong common sense which these men were silently infusing into the literature of Western Europe in ages of concealment and mystification. Roger Bacon, at a much later time, gave to one of his works the title of "The Green Lion;" to another, "The Treatise of Three Words."

Since it was by the power and patronage of the Saracens that the Jewish physicians were acting, it is not surprising that the language used in many of their compositions was Arabic. Translations were, however, commonly made into Hebrew, and, at a subsequent period, into Latin. Through the ninth century the Asiatic colleges maintained their previous celebrity in certain branches of knowledge. Thus the Jew Shabtai Donolo was obliged to go to Bagdad to complete his studies in astronomy. As, however, Arabian influence extended itself into Sicily and Italy, Jewish intelligence accompanied it, and schools were founded at Tarentum, Salerno, Bari, and other places. Here the Arab and Jew Orientalists first amalgamated with a truly European element—the Greek—as is shown by the circumstance that in the college at Salerno instruction was given through the medium of all three languages. At one time, Pontus taught in Greek, Abdallah in Arabic, and Elisha in Hebrew. A similar influence of the Arab and Jew combined founded the University of Montpellier.

After the foundation of medical colleges, the progress of medicine among the Jews was very rapid. Judged by our standard, in some respects it was peculiar. Thus they looked upon the practice of surgery as altogether mechanical, and therefore ignoble. A long list of eminent names might be extracted from the tenth and eleventh centuries. In it we should find Haroun of Cordova, Jehuda of Fez, Amram of Toledo. Already it was apparent that the Saracenic movement would aid in developing the intelligence of barbarian Western Europe through Hebrew physicians, in spite of the opposition encountered from theological ideas imported from Constantinople and Rome. Mohammedanism had all along been the patron of physical science; paganizing Christianity not only repudiated it, but exhibited toward it sentiments of contemptuous disdain and hatred. Hence physicians were viewed by the Church with dislike, and regarded as atheists by the people, who held firmly to the lessons they had been taught that cures must be wrought by relics of martyrs and bones of saints, by prayers and intercessions, and that each region of the body was under some spiritual charge, the first joint of the right thumb being in the care of God the Father, the second under that of the blessed Virgin, and so on of other parts. For each disease there was a saint.

Foundation
of colleges.

Medical studies
among the Jews.

Imposture-
medicine.

A man with sore eyes must invoke St. Clara, but if it was an inflammation elsewhere he must turn to St. Anthony. An ague would demand the assistance of St. Pernel. For the propitiating of these celestial beings it was necessary that fees should be paid, and thus the practice of imposture-medicine became a great source of profit.

In all this there was no other intention than that of extracting money from the illiterate. With men of education and position it was different. Bishops, princes, kings, and popes had each in private his Hebrew doctor, though all understood that he was a contraband luxury, in many countries pointedly and absolutely prohibited by the law. In the eleventh century nearly all the physicians in Europe were Jews. This was due to two different causes: the Church would tolerate no interference with her spiritual methods of treating disease, which formed one of her most productive sources of gain; and the study of medicine had been formally introduced into the rabbinical schools. The rabbis cultivate medicine

The monk was prohibited a pursuit which gave to the rabbi an honorable emolument. From the older institutions offshoots in quick succession appeared, particularly in France. Thus the school at Narbonne was under the presidency of Doctor Rabbi Abou. There was also a flourishing school at Arles. In these institutions instruction was given through the medium of Hebrew and Arabic, the Greek element present at Salerno being here wanting. In the French schools, to the former languages Latin and Provençal were, in the course of time, added. The versatility of acquirement among the physicians, who were taking the lead in this intellectual movement, is illustrated both by the Spanish and French Jews. Some, like Djanah, a native of Cordova, acquired reputation in grammar, criticism, astronomy; others in poetry or theology.

If thus the social condition of the rabbis, who drew no income from their religious duties, induced them to combine the practice of medicine with their pursuits, great facilities had arisen for mental culture through the establishment of so many schools. Henceforth the Jewish physician is recognized as combining with his professional skill a profound knowledge of theology, mathematics, astronomy, philosophy, music, law. and other sciences. In a singular manner he stands aloof in the barbarian societies among whom he lives, looking down like a philosopher upon their idolatries, permitting, or even excusing them, like a statesman. Of those who thus adorned the eleventh century was Rabbi Solomon Ben Isaac, better known under the abbreviation Raschi—called by his countrymen the Prince of Commentators. He was equally at home in writing commentaries on the Talmud, or in giving instructions for great surgical operations, as the Cæsarean section. He was the greatest French physician of his age. Spain, during the same century, produced a worthy competitor to him, Ebn Zohr, physician to the court of Seville. His writings were in Hebrew, Arabic, Syriac, and both in prose Writings of the Spanish-Jewish physicians.

and verse. He composed a treatise on the cure of diseases, and two on fevers. In singular contrast with the superstitious notions of the times, he possessed a correct view of the morbid nature of marsh miasm. He was followed by Ben Ezra, a Jew of Toledo, who was at once a physician, philosopher, mathematician, astronomer, critic, poet. He traveled all over Europe and Asia, being held in captivity for some time in India. Among his medical writings was a work on theoretical and practical medicine, entitled "Book of Proofs." Through the wars arising in Spain between the Mohammedans and Christians, many learned Jews were driven into France, imparting to that country, by their presence, a new intellectual impulse. Of such were Aben Tybbon, who gave to his own profession a pharmaceutical tendency by insisting on the study of botany and the art of preparing drugs. Ben Kimchi, a Narbonne physician and grammarian, wrote commentaries on the Bible, sacred and moral poems, a Hebrew grammar. Notwithstanding the opposition of the ecclesiastics, William, the Lord of Montpellier, passed an edict authorizing all persons, without exception, to profess medicine in the university of his city. This was specially meant for the relief of the Jews, though expressed in a general way. Spain, though she had thus lost many of her learned men, still continued to produce others of which she Maimonides. had reason to be proud. Moussa Ben Maimon, known all over Europe as Maimonides, was recognized by his countrymen as "the Doctor, the Great Sage, the Glory of the West, the Light of the East, second only to Moses." He is often designated by the four initials R. M. B. M., that is, Rabbi Moses Ben Maimon, or briefly Rambam. His biography presents some points of interest. He was born at Cordova A.D. 1135, and, while yet young, wrote commentaries on the Talmuds both of Babylon and Jerusalem, and also a work on the Calendar; but, embracing Mohammedanism, he emigrated to Egypt, and there became physician to the celebrated Sultan Saladin. Among his works are medical aphorisms, derived from former Greek, Latin, Hebrew, and Arabic sources; an abridgment of Galen; and of his original treatises, which were very numerous, may be mentioned those "On Hemorrhoids," "On Poisons and Antidotes," "On Asthma," "On the Preservation of Health"—the latter being written for the benefit of the son of Saladin—"On the Bites of Venomous Animals"—written by order of the sultan—"On Natural History." His "Moreh Nevochim," or "Teacher of the Perplexed," was an attempt to reconcile the doctrines of the Old Testament with reason. In addition to these, he had a book on Idolatry, and one on Christ. Besides Maimonides, the sultan had another physician, Ebn Djani, the author of a work on the medical topography of the city of Alexandria. From the biographies of these learned men of the twelfth century it would seem that their religious creed hung lightly upon them. Not unfrequently they converted to Mohammedanism.

It might be tedious if I should record the names and writings of the learned European Jews of the twelfth and thirteenth centuries, a period more prolific of these great men than even the preceding ages. But I can not pass these later centuries without mentioning the Alphonsine Tables, calculated for Alphonso, the King of Castile, by Mascha, his Hebrew physician. The irreligious tendency of the times is illustrated by the well-known sarcasm uttered by that Spanish monarch respecting the imperfect construction of the heavens, according to the Ptolemaic hypothesis. For long, however, the Jews had been dabbling in free-thinking speculations. Thus Aben Tybbon, above mentioned, anticipating that branch of science which has drawn upon itself, in later years, so much opprobrium, wrote a work containing a discussion of the causes which prevent the waters of the sea from encroaching on the land. Abba Mari, a Marseillaise Jew, translated the *Almagest* of Ptolemy and the *Commentary* of Averrhoes upon it. The school of Salerno was still sending forth its doctors. In Rome, Jewish physicians were very numerous, the popes themselves employing them. Boniface VIII. had for his medical adviser Rabbi Isaac. At this period Spain and France were full of learned Jews; and perhaps partly by their exerting upon the higher classes with whom they came in contact too much influence, for the physician of a Christian prince was very often the rival of his confessor, and partly because the practice of medicine, as they pursued it, interfered with the gains of the Church, the clergy took the alarm, and caused to be re-enacted or enforced the ancient laws. The Council of Beziers, A.D. 1246, and the Council of Alby, A.D. 1254, prohibited all Christians from resorting to the services of an Israelitish physician. It would appear that these enactments had either fallen into desuetude or had failed to be enforced. The faculty of Paris, awakening at last to the danger of the case, caused, A.D. 1301, a decree to be published prohibiting either man or woman of the religion of Moses from practicing medicine upon any person of the Catholic religion. A similar course was also taken in Spain. At this time the Jews were confessedly at the head of French medicine. It was the appointment of one of their persuasion, Profatius, as regent of the faculty of Montpellier, A.D. 1300, which drew down upon them the wrath of the faculty of Paris. This learned man was a skillful astronomer; he composed tables of the moon; of the longitudes of many Asiatic and African towns; he determined the obliquity of the ecliptic, his result being honorably alluded to by Copernicus. The animosity of the French ecclesiastics against the Jewish physicians at last led to the banishment of all the Jews from France, A.D. 1306. "It was," say the historians of this event, "a most revolting spectacle to see so many learned men, who had adorned and benefited France, proscribed, wanderers without a country or an asylum. Some of them expired of grief

Later Jewish
physicians.

The University of
Paris causes the ex-
pulsion of the Jews
from France.

upon the road. Abba Mari gives in his work heart-rending details of the expulsion of the Jews from Montpellier, at the head of whom were the professors and doctors of the faculty."

But, though thus driven into exile, these strangers had accomplished their destiny. They had silently deposited in France their ideas. They had sapped the credulity of the higher classes in Europe, and taught them to turn away from the supernatural. A clear recognition of their agency in this matter fastened upon them the watchful eye of the Inquisition, and made them the victims of its tyranny.

And so it might well be. Out of the Spanish peninsula there had come across the Pyrenees an intellectual influence, which reached the populace under the form of a fresh and pleasing literature, and the better classes by novel but unorthodox ideas. To a very great extent the Jews had been its carriers. The result was the overthrow of supernaturalism. We shall hardly accept the affirmation of good Catholics that fairies disappeared on account of the Reformation, unable to bear the morose sectarianism with which it was accompanied, or the still more material explanation of the rustics that it was through the introduction of tobacco. However that may be, no longer is Robin Goodfellow the compeller of household duties—no longer do bad elves sit by the dying embers on the hearth-stone at night, in the shape of shriveled frogs, after the family have gone to bed. For a long time there have been no miracles in Europe. Even Rome, the workshop of those artifices, has ceased to be the seat of that trade.

From human institutions of any kind, a great principle, firmly wrought and inwoven at the beginning, can never be removed. It will show itself whenever occasion permits. The animosity between the Byzantine ecclesiastical system and all worldly wisdom was indistinguishable, though it was utterly foreign to Christianity. It was fastened by imperial violence on the nations, and made its appearance, with unabated force, at intervals of ages. The same evil instinct which tore Hypatia piecemeal in the church at Alexandria brought Galileo into the custody of the familiars of the holy office at Rome. The necessary consequence of this upholding ignorance by force was the emergence of ideas successively more and more depraved. Whoever will ingenuously compare the religious state of Italy in the fourteenth century with its state in the fourth—that is, the recent Italian with the old Roman—will find that among the illiterate classes nothing what-
Result that they had accomplished.
Destruction of fairies by tobacco.
Causes of the ecclesiastical opposition.
Degraded state of Italy.
 ever had been accomplished. There were no elevated thoughts of holy things. From practical devotion God had altogether disappeared; the Savior had been supplanted by the blessed Virgin; and she herself—such was the increasing degradation—had been abandoned for the ignoble worship of apotheosized men, who, under the designation of saints, had engrossed all the votaries. There had been a rapid descent

to the last degree of more than African abasement in bleeding statues and winking pictures.

In Europe there had been incorporated old forms of worship and old festivals with Christian ones without any scruple; the local gods and goddesses had been replaced by saints; for deification canonization had been substituted. There had been produced a civilization, the character of which was its extraordinary intolerance. A man ^{Rise of a new social system.} could not be suspected of doubting the popular belief without risk to his goods, his body, or his life. As a necessary consequence, there could be no great lawgivers, no philosophers, no poets. Society was pervaded by a systematic hypocrisy. This tyranny over others sometimes led to strange results. It caused the Jews to discover the art of making wealth invisible by bills of exchange and other such like means, so that money might be imperceptibly but instantaneously moved.

Thus, after the dying out of Greek science, there followed, among the new populations, an intellectual immobility, which soon became the centre of a vast number of growing interests quickly and firmly ^{Influence of that new system,} crystallizing round it. For them it was essential that there should be no change—no advance. In the midst of jarrings and conflicts between those interests, that condition was steadfastly maintained, as if through instinct, by them all. It mattered not how antiquated were the forms insisted on, nor how far they outraged common sense. New life was given to decaying illusions, and, in return, strength was gathered from them. Isis, with the moon beneath her feet, ^{and degradation by African ideas.} was planted, under a new name, on the Bosphorus and the Tiber. African theology, African ecclesiastical machinery, and African monasticism were made objects of reverence to unsuspecting Europe. Juvenal says that the Roman painters of his day lived on the goddess Isis. The Italian painters of a later day lived on her modernized form.

In such a condition of things the literary state could be no other than barren. Political combinations had not only prescribed an intellectual terminus, but had even laid down a rail upon ^{No literature in the Age of Faith.} which mental excursions were to be made, and from which there was no departing; or, if a turn-out was permitted, it was a tonsured man who stood at the switch. For centuries together, if we exclude theological writings, there was absolutely no literature worth the name. Life seems to have been spent in the pursuit of mere physical enjoyment, and that enjoyment of a very low kind. When in the south of France and Sicily literature began to dawn, it is not to be overlooked how much of it was of an amatory kind; and love is the strongest of the passions. The first aspect of Western literature was animal, not intellectual. A taste for learning excited, there reappeared in the schools the old treatises written a thousand years before—the Elements of Euclid, the ^{Its critical innocence.} Geography of Ptolemy. Long after the Reformation there was

an intellectual imbecility which might well excite our mirth, if it were not the index of a stage through which the human mind must pass. Often enough we see it interestingly in the interweaving of the old with the new ideas. If we take up a work on metallurgy, it commences with Tubal Cain; if on music, with Jubal. The history of each country is traced back to the sons of Noah, or at least to the fugitives from the siege of Troy. An admiration for classical authors may perhaps be excused. It exhibited itself amusingly in the eccentricity of interlarding compositions of every kind with Greek and Latin quotations. It was an age of literary innocence, when no legend was too stupendous for credulity; when there was no one who had ever suspected that Tully, as they delighted to call him, was not a great philosopher, and Virgil not a great poet.

Of those ponderous, those massive folios on ecclesiastical affairs, at once the product and representatives of the time, but little needs here to be said. They boasted themselves as the supreme effort of human intellect; they laid claim to an enduring authority; to many they had a weight little less than the oracles of God. But if their intrinsic value is to be measured by their pretensions, and their pretensions judged of by their present use, what is it that must be said? Long ago their term was reached, long ago they became obsolete. They have no reader. Such must be the issue of any literature springing from an immovable, an unexpanding basis, the offspring of thought that has been held in subjugation by political formulas, or of intellectual energies that have been cramped.

The Roman ecclesiastical system, like the Byzantine, had been irrevocably committed in an opposition to intellectual development. It professed to cultivate the morals, but it crushed the mind. Yet, in the course of events, this state of things was to come to an end through the working of other principles equally enduring and more powerful. They constitute what we may speak of under the title of the Arabian element. On preceding pages it has been shown that, on the transit of the Saracens through Egypt, they came under the influence of the Nestorians and Hellenizing Jews, acquiring from them a love of philosophy, which soon manifested itself in full energy from the banks of the Euphrates to those of the Guadalquivir. The hammer of Charles Martel might strike down the ranks of the Saracens on the field of Tours, but there was something intangible, something indestructible accompanying them, which the Frank chivalry could not confront. To the Church there was an evil omen. It has been well remarked that in the Provençal poetry there are noble bursts of crusading religious sentiment, but they are incorporated with a sovereign contempt for the clergy.

The biography of any of the physicians or alchemists of the thirteenth

Disease of patristic works.

Spread of science in France.

century would serve the purpose of illustrating the watchfulness of the Church, the unsound condition of the universities, the indirect patronage extended to heretics by eminent men, and the manner in which the rival powers, ecclesiasticism and philosophy, were preparing for their final conflict. As an example of the kind, I may present briefly that of Arnold de Villa Nova, born about A.D. 1250. He enjoyed a great reputation for his knowledge of medicine and alchemy. For some years he was physician to the King of Aragon. Under an accusation of defective orthodoxy he lost his position at court, his punishment being rendered more effective by excommunication. Hoping to find in Paris more liberality than he had met with in Spain, he fled to that city, but was pursued by an adverse ecclesiastical influence with a charge of having sold his soul to the Devil, and of having changed a plate of copper into gold. In Montpellier, to which he was obliged to retire, he found a more congenial intellectual atmosphere, and was for long one of the regents of the faculty of medicine. In succession, he subsequently resided in Florence, Naples, Palermo, patronized and honored by the Emperor Frederick II.—at that time engaged in the attempt to unite Italy into one kingdom and give it a single language—on account of his extraordinary reputation as a physician. Even the pope, Clement V., notwithstanding the unfortunate attitude in which Arnold stood toward the Church, besought a visit from him in hopes of relief from the stone. On his voyage for the purpose of performing the necessary operation, Arnold suffered shipwreck and was drowned. His body was interred at Genoa. The pope issued an encyclic letter, entreating those who owed him obedience to reveal where Arnold's Treatise on the Practice of Medicine might be found, it having been lost or concealed. It appears that the chief offenses committed by Arnold against the Church were that he had predicted that the world would come to an end A.D. 1335; that he had said the bulls of the pope were only the work of a man, and that the practice of charity is better than prayer, or even than the mass. If he was the author of the celebrated book "De Tribus Impostoribus," as was suspected by some, it is not remarkable that he was so closely watched and disciplined. Like many of his contemporaries, he mingled a great deal of mysticism with his work, recommending, during his alchemical operations, the recitation of psalms, to give force to the agents used. Among other such things, he describes a seal, decorated with scriptural phrases, of excellent use in preserving one from sudden death. It appears, however, to have failed of its effect on the night when Arnold's ship was drifting on an Italian lee-shore, and he had most need of it.

The two antagonistic principles—ecclesiastical and intellectual—were thus brought in presence of each other. On other occasions they had been already in partial collision, as at the

Illustration
from the bi-
ography of
Arnold.

Two impulses—In-
tellectual and moral—
in operation.

iconoclastic dispute which originated in the accusations of the Moham-medans, and ended in the tearing asunder of Christendom.

Again there was a collision, a few centuries later, when the Spanish Moors and Jews began to influence the higher European classes. Among the bishops, sovereigns, and even popes thus affected, there were many men of elevated views, who

Struggle of ecclesiasticism against the intellectual principle.

saw distinctly the position of Europe, and understood thoroughly the difficulties of the Church. It had already become obvious to them that it would be impossible to restrain the impulse arising from the vigorous movements of the Saracens, and that it was absolutely necessary so to order things that the actual condition of faith in Europe might be accommodated to or even harmonized with these philosophical conceptions, which it was quite clear would, soon or late, pervade the whole Continent. This, as we have seen, is the explanation of the introduction of Scholasticism from the Arabian schools, and its accommodation to the Christian code, on which authority looked with so much favor at first. But hardly had this attempt been entered upon before it became manifest that the risks to be incurred through the remedy itself were as evil as the anticipated dangers. There was then no other course than for the Church to retrace her steps, ostensibly maintaining her consistency by permitting scholastic literature, though declining scholastic theology. She thus allured the active intellect, arising in all directions in the universities, to fruitless and visionary pursuits. This policy, therefore, threw her back upon a system of repression; it was the only course possible; yet there can be no doubt that it was entered upon with reluctance. We do injustice to the great men who guided ecclesiastical policy in those times when we represent them as recklessly committing themselves to measures at once violent and indefensible. They did make the attempt to institute an opposite policy; it proved not only a failure, but mischievous. They were then driven to check the spread of knowledge—driven by the necessities of their position. The fault was none of theirs; it dated back to the time of Constantine the Great; and the impossibility of either correcting or neutralizing it is only an example, as has been said, of the manner in which a general principle, once introduced, will overbear the best exertions of those attempting to struggle against it. We can appreciate the false position into which those statesmen were thrown when we compare their personal with their public relations. Often the most eminent persons lived in intimacy and friendship with Jewish physicians, who, in the eye of the law, were enemies of society; often those who were foremost in the cultivation of knowledge—who, indeed, suffered excommunication for its sake—maintained amicable relations of a private kind with those who in public were the leaders of their persecutors. The systems were in antagonism, not the men. Arnold de Villa Nova, though excommuni-

The difficulty was in the system, not in the men.

cated, was the physician of one pope; Roger Bacon, though harshly imprisoned, was the friend and correspondent of another. These incidents are not at all to be mistaken for that compassion which the truly great are ever ready to show to erring genius. They are examples of what we often see in our own day, when men engaged in the movements of a great political party loyally carry out its declared principles to their consequences, though individually they might find in those consequences many things to which they could mentally object. Their private objection they thus yield for the sake of what appears to them, in a general way, a practical good.

Such was the state of affairs when the Arab element, having pervaded France and Italy, made its formal intellectual attack. It might almost have been foreseen in what manner that attack would be made, and the shape it would be likely to assume. Of the sciences, astronomy was the oldest and most advanced. Its beginning dates earlier than the historic period, and both in India and in Egypt it had long reached correctness, so far as its general principles were concerned. The Saracens had been assiduous cultivators of it in both its branches, observation and mathematical investigation. Upon one point, the figure and relations of the earth, it is evident that not the slightest doubt existed among them. Nay, it must be added that no learned European ecclesiastic or statesman could deny the demonstrated truths. Nevertheless, it so fell out that upon this very point the conflict commenced. In India the Brahmans had passed through this same trial—for different nations walk through similar paths—with a certain plausible success, by satisfying the popular clamor that there was, in reality, nothing inconsistent between the astronomical doctrine of the globular form and movement of the earth, and the mythological dogma that it rests upon a succession of animals, the lowest of which is a tortoise. But the strong common sense of Western Europe was not to be deluded in any such idle way. It is not difficult to see the point of contact, the point of pressure with the Church. The abstract question gave her no concern; it was the consequences that might possibly follow. The memorable battle was fought upon the question thus sharply defined: Is the earth a moving globe, a small body in the midst of blazing suns and countless myriads of worlds, or is it the central and greatest object in the universe, flat, and canopied over with a blue dome, motionless while all is in movement around it? The dispute thus definitely put, its issue was such as must always attend upon a controversy in which he who is defending is at once lukewarm and conscious of his own weakness. Never can moral interests, however pure, stand against intellect enforcing truth. On this ill-omened question the Church ventured her battle and lost it.

The intellectual impulse makes its attack through astronomy,

and the Church is defeated.

Though this great conflict is imbodyed in the history of Galileo, who

has become its historical representative, the prime moving cause must not be misunderstood. From the Pyrenees had passed forth The moral impulse. an influence which had infected all the learned men of Western Europe. Its tendency was altogether unfavorable to the Church. Moreover, the illiterate classes had been touched, but in a different way. To the first action the designation of the intellectual impulse may be given; to the latter, the moral. It is to be especially observed that in their directions these impulses conspired. We have seen how, through the Saracens and Jews conjointly, the intellectual impulse came into play. Origin of the moral impulse. The moral impulse originated in a different manner, being due partly to the Crusades and partly to the state of things in Rome. On these causes it is therefore needful for us to reflect.

First, of the Crusades. There had been wrenched from Christendom its fairest and most glorious portions. Spain, the north of Africa, Egypt, Syria, Asia Minor, were gone. The Mohammedans had been repeatedly under the walls of Constantinople; its fall was only a question of time. They had been in the streets of Rome. They had marched across Italy in every direction. But perhaps the geographical losses, appalling as Loss of the holy places. they were, did not appear so painful as the capture of the holy places: the birth-place of our Redeemer; the scene of his sufferings; the Mount of Olives; the Sea of Galilee; the Garden of Gethsemane; Calvary; the Sepulchre. Too often in their day of strength, while there were Roman legions at their back, had the bishops taunted Paganism with the weakness of its divinities, who could not defend themselves, their temples, or their sacred places. That logic was retaliated now. To many a sincere heart must many an ominous reflection have occurred. In Western Europe there was a strong common sense which quickly caught the true position of things—a common sense neither to be blinded nor hoodwinked. The astuteness of the Italian politicians was insufficient to conceal altogether the great fact, though it might succeed in dissembling its real significance for a time. The Europe of that day was very different from the Europe of ours. It was in its Age of Faith. Recently converted, as all recent converts do, it made its belief a living rule of action. In our times there is not upon that continent a nation which, in its practical relations with others, carries out to their consequences its ostensible, its avowed articles of belief. Catholics, Protestants, Mohammedans, they of the Greek communion, indiscriminately consort together under the expediences of the passing hour. Statesmanship has long been dissevered from religion—a fact most portentous for future times. But it was not so in the Middle Ages. Men then believed their form of faith with the same clearness, the same intensity with which they believed their own existence or the actual presence of things upon which they cast their eyes. The doctrines of the Church were to them no mere inconsequential affair, but an absolute, an actual

reality, a living and a fearful thing. It would have passed their comprehension if they could have been assured that a day would come when Christian Europe, by a breath, could remove from the holy places the scandal of an infidel intruder, but, upon the whole, would consider it not worth her while to do so. How differently they acted. When, by the preaching of Peter the Hermit and his collaborators, who had received a signal from Rome, a knowledge had come to their ears of the reproach that had befallen Jerusalem and the sufferings of the pilgrims, their plain but straightforward common sense taught them at once what was the right remedy to apply, and forthwith they did apply it, and Christendom, precipitated headlong upon the Holy Land, was brought face to face with Mohammedanism. But what a scene awaited the zealous, the religious barbarians—for such they truly were—when Constantinople, with its matchless splendors, came in view! What a scene when they had passed into Asia Minor, that garden of the world, presenting city after city, with palaces and edifices, the pride of twenty centuries! How unexpected the character of those Saracens, whom they had been taught, by those who had incited them to their enterprise, to regard as no better than bloodthirsty fiends, but whom they found valiant, merciful, just! When Richard the Lion-hearted, King of England, lay in his tent consumed by a fever, there came into the camp camels laden with snow, sent by his enemy, the Sultan Saladin, to assuage his disease, the homage of one brave soldier to another. But when Richard was returning to England, it was by a Christian prince that he was treacherously seized and secretly confined. This was doubtless only one of many such incidents which had often before occurred. Even down to the meanest camp-follower, every one must have recognized the difference between what they had anticipated and what they had found. They had seen undaunted courage, chivalrous bearing, intellectual culture far higher than their own. They had been in lands filled with the prodigies of human skill. They did not melt down into the populations to whom they returned without imparting to them a profound impression destined to make itself felt in the course of time.

*Effect of the
Crusades.*

*Change of opinion
in the Crusaders.*

But, secondly, as to the state of things in Rome. The movement into which all Europe had been thrown by these wars brought to light the true condition of things in Italy as respects morality. Locomotion in a population is followed by intellectual development. The old stationary condition of things in Europe was closed by the Crusades. National movement gave rise to better observation, better information, and could not but be followed by national reflection. And though we are obliged to speak of the European population as being in one sense in a barbarous state, it was a moral population, earnestly believing the truth of every doctrine it had been taught, and sincerely

*They discover
the immoralities
of Italy.*

expecting that those doctrines would be carried to their practical application, and that religious profession must, as a matter of course, be illustrated by religious life. The Romans themselves were an exception to this. They had lived too long behind the scenes. Indeed, it may be said that all the Italian peninsula had emancipated itself from that delusion, as likewise certain classes in France, who had become familiar with the state of things during the residence of the popes at Avignon. It has been the destiny of Southern France to pass, on a small scale, under the same influence, and to exhibit the same results as were appointed for all Europe at last.

And now, what was it that awakening Europe found to be the state of things in Italy? I avert my eyes from looking again at the biography of the popes; it would be only to renew a scene of sin and shame. Nor can I, without injustice to truth, speak of the social condition of the inhabitants of that peninsula without relating facts which would compel my reader to turn over the page with a blush. I prefer to look at the maxims of political life which had been followed for many centuries, and which were first divulged by one of the greatest men that Italy has produced in a work—A.D. 1513—truly characterized as a literary prodigy. Certainly nothing can surpass in atrocity the maxims therein laid down.

Machiavelli, in that work, tells us that there are three degrees of capacity among men. That one understands things by his own natural powers; another, when they are explained to him; a third, not at all. In dealing with these different classes different methods are to be used. The last class, which is by far the most numerous, is so simple and weak that it is very easy to dupe those who belong to it. If they cease to believe of their own accord they ought to be constrained by force, in the application of which, though there may be considerable difficulties at first, yet, these once overcome by a sufficient unscrupulousness, veneration, security, tranquillity, and happiness will follow. That, if a prince is constrained to make his choice, it is better for him to be feared than loved; he should remember that all men are ungrateful, fickle, timid, dissembling, and self-interested; that love depends on them, but fear depends on him, and hence it is best to prefer the latter, which is always in his own hands. That, as to governments, their form is of very little moment, though half-educated people think otherwise. The great aim of statesmanship should be permanence, which is worth every thing else, being far more valuable than freedom. That, if a man wants to ruin a republic, his proper course is to set it on bold undertakings, which it is sure to mismanage; that men, being naturally wicked, incline to good only when they are compelled; they think a great deal more of the present than the past, and never seek change so long as they are made comfortable.

He recommends a ruler to bear in mind that, while the lower class of

men may desert him, the superior will not only desert, but conspire. If such can not with certainty be made reliable friends, it is very clearly necessary to put it out of their power to be enemies. Thus it may be observed that the frequent insurrections in Spain, Gaul, and Greece against the Romans were entirely due to the petty chiefs inhabiting those countries; but that, after they had once been put to death, every thing went on very well. Up to a certain point, it should be the grand maxim of a wise government to content the people and to manage the nobles; but that, since hatred is just as easily incurred by good actions as by bad ones, there will occasionally arise the necessity of being wicked in order to maintain power, and, in such a case, there should be no hesitation; for, though it is useful to persevere in the path of rectitude while there is no inconvenience, we should deviate from it at once if circumstances indicate. A prudent prince ought not to keep his word to his own injury; he ought to bear in mind that one who always endeavors to act as duty dictates necessarily insures his own destruction; that new obligations never extinguish the memory of former injuries in the minds of the superior order of men; that liberality, in the end, generally insures more enemies than friends; that it is the nature of mankind to become as much attached to one by the benefits they render as by the favors they receive; that, where the question is as to the taking of life or the confiscation of property, it is useful to recollect that men forget the death of their relatives, but not the loss of their patrimony; that, if cruelties should become expedient, they should be committed thoroughly and but once—it is very impolitic to resort to them a second time; that there are three ways of deciding any contest—by fraud, by force, or by law, and a wise man will make the most suitable choice; that there are also three ways of maintaining control in newly-conquered states that have once been free—by ruining them, by inhabiting them, or by permitting them to keep their own laws and to pay tribute. Of these the first will often be found the best, as we may see from the history of the Romans, who were experienced judges of such cases. That, as respects the family of a rival but conquered sovereign, the greatest pains should be taken to extinguish it completely; for history proves, what many fabulous traditions relate, that dangerous political consequences have originated in the escape of some obscure or insignificant member; that men of the highest order, who are, therefore, of sound judgment—who seek for actual social truths for their guidance rather than visionary models which never existed—will conform to the decisions of reason, and never be influenced by feelings of sentiment, unless it is apparent that some collateral advantage will arise from the temporary exhibition thereof; and that they will put a just estimate on the delusions in which the vulgar indulge, casting aside the so-called interventions of Divine Providence, which are, in reality, nothing more than the concatenation of certain cir-

cumstances following the ordinary law of cause and effect, but which, by interfering with the action of each other, have assumed a direction which the judgment of the wisest could not have foreseen.

Europe has visited with its maledictions the great political writer by whom these atrocious maxims have been recommended, forgetting that his offense consists not in inventing, but in divulging them. His works thus offer the purest example we possess of physical statesmanship. They are altogether impassive. He views the management of a state precisely as he might do the construction of a machine, recommending that such a wheel or such a lever should be introduced, his only inquiry being whether it will accomplish his intention. As to any happiness or misery it may work, he gives himself no concern, unless, indeed, they evidently ought to enter into the calculation. He had suffered the rack himself under a charge of conspiracy, and borne it without flinching. But, before Machiavelli wrote, his principles had all been carried into practice; indeed, it would not be difficult to give abundant examples in proof of the assertion that they had been for ages regarded in Italy as rules of conduct.

Such was the morality which Europe detected as existing in Italy, carried out with inconceivable wickedness in public and private life; and thus the two causes we have been considering—contact with the Saracens in Syria and a knowledge of the real state of things in Rome—conspired together to produce what may be designated as the moral impulse, which, in its turn, conspired with the intellectual. Their association foreboded evil to ecclesiastical authority, thus taken at great disadvantage. Though, from its very birthday, that authority had been in absolute opposition to the intellectual movement, it might, doubtless, for a much longer time have successfully maintained its conflict therewith had the conditions remained unchanged. Up to this time its chief strength reposed upon its moral relations. It could point, and did point the attention of those whose mental culture enabled them to understand the true position of affairs, to Europe, brought out of barbarism, and beginning a course of glorious civilization. That achievement was claimed by the Church. If it was true that she had thus brought it to pass, it had been altogether wrought by the agency of her moral power, intellectual influence in no manner aiding therein, but being uniformly, from the time of Constantine the Great to that of the Reformation, instinctively repulsed. When, now, the moral power suffered so great a shock, and was not only ready to go over to, but had actually allied itself with the intellectual, there was great danger to ecclesiastical authority. And hence we need not be surprised that an impression began to prevail among the clear-thinking men of the time that the real functions of that authority were completed in producing the partially-civilized condition to which Europe had attained,

Conjoined effect
of the intellectual
and moral
impulses.

the course of events tending evidently to an elimination of that authority as an active element in the approaching European system. To such the Church might emphatically address herself, pointing out the signal and brilliant results to which she had given rise, and displaying the manifest evils which must inevitably ensue if her relations, as then existing, should be touched. For it must have been plain that the first effect arising from the coalition of the intellectual with the moral element would be an assertion of the right of private judgment in the individual—a condition utterly inconsistent with the dominating influence of authority. It was actually upon that very principle that the battle of the Reformation was eventually fought. She might point out—for it needed no prophetic inspiration—that, if once this principle was yielded, there could be no other issue in Christendom than a total decomposition; that though, for a little while, the separation might be limited to a few great confessions, these, under the very influence of the principle that had brought themselves into existence, must, in their turn, undergo disintegration, and the end of it be a complete anarchy of sects. In one sense it may be said that it was in wisdom that the Church took her stand upon this point, determining to make it her base of resistance; unwisely in another, for it was evident that she had already lost the initiative of action, and that her very resistance would constitute the first stage in the process of decomposition.

The excuses of
ecclesiasticism.

Her feeble
resistance.

Europe had made a vast step during its Age of Faith. Spontaneously it had grown through its youth; and the Italians, who had furnished it with many of its ideas, had furnished it also many of its forms of life. In that respect justice has still to be done them. When Rome broke away from her connections with Constantinople, a cloud of more than Cimmerian darkness overshadowed Europe. It was occupied by wandering savages. Six hundred years organized it into families, neighborhoods, cities. Those centuries found it full of bondmen; they left it without a slave. They found it a scene of violence, rapine, lust; they left it the abode of God-fearing men. Where there had been trackless forests, there were innumerable steeples glittering in the sun; where there had been bloody chieftains, drinking out of their enemies' skulls, there were grave ecclesiastics, fathoming the depths of free-will, predestination, election. Investing the clergy with a mysterious superiority, the Church asserted the equality of the laity before God from the king to the beggar. It disregarded wealth and birth, and opened a career for all. Its influence over the family and domestic relations was felt through all classes. It ascertained a father by a previous ceremony; it enforced the rule that a wife passes into the family of her husband, and hence it followed that legitimate children belong to the father, illegitimate to the mother. It compelled women to domestic life, shut them out from the priesthood, and tried to exclude them from government.

Contemporaneous
changes in
Europe.

In a worldly sense, the mistake that Rome committed was this: she attempted to maintain an intellectual immobility in the midst of an advancing social state. She saw not that society could no more be stopped in its career through her mere assertion that it could not and should not move, than that the earth could be checked in its revolution merely because she protested that it was at rest. She tried, first by persuasion and then by force, to arrest the onward movement, but she was overborne, notwithstanding her frantic resistance, by the impetuous current. Very different would it have been had the Italian statesmen boldly put themselves in the van of progress, and, instead of asserting an immutability and infallibility, changed their dogmas and maxims as the progress of events required. Europe need not to have waited for Arabs and Jews.

In describing these various facts, I have endeavored to point out impressively how the Church, so full of vigor at first, contained within itself the seeds of inevitable decay. From the period when it came into collision with the intellectual and moral elements, the origin of which we have traced, and which conspired together for its overthrow, it exhibited Loss of power in Church organizations. a gradual decline; first losing its influence upon nations, and ceasing to be in them a principle of public action; next, witnessing the alienation of the higher and educated classes, the process descending downward through the social scale, therein retracing the steps of its advance. When ecclesiasticism became so weak as to be unable to regulate international affairs, and was supplanted by diplomacy, in the castle the physician was more than a rival for the confessor, in the town the mayor was a greater man than the abbot. There remained a lingering influence over individuals, who had not yet risen above a belief that it could control their state after death. This decline of its ancient influence should be a cause of rejoicing to all intelligent men, for an ecclesiastical organization allying itself to political power can never now be a source of any good. In America we have seen the bond that held the Church and State together abruptly snapped. It is therefore well that, since the close of the Age of Faith, things have been coming Return of things to the ancient Christian times. back, with an accelerated pace, to the state in which they were in the early Christian times, before the founder of Constantinople beguiled the devotional spirit to his personal and family benefit—to the state in which they were before ambitious men sought political advancement and wealth by organizing hypocrisy—when maxims of morality, charity, benevolence, were rules of life for individual man—when the monitions of conscience were obeyed without the suggestions of an outward, often an interested and artful prompter—when the individual lived not under the sleepless gaze, the crushing hand of a great overwhelming hierarchical organization, surrounding him on all sides, doing his thinking for him, directing him in his acts, making him a mere automaton, but in simplicity, humility, and truthfulness guiding himself

according to the light given him, and discharging the duties of this troublesome and transitory life "as ever in his great Taskmaster's eye."

For the progressive degradations exhibited by the Roman Church during the Age of Faith, something may be offered as at once an explanation and an excuse. Machiavelli relates, in his "History of Florence"—a work which, if inferior in philosophical penetration to his "Prince," is of the most singular merit as a literary composition—that Ostorco, a Roman, having become pope, exchanged his unseemly name for the more classical one Sergius, and that his successors have ever since observed the practice of assuming a new name. This incident profoundly illustrates the psychological progress of that Church. During the fifteen centuries that we have had under consideration—counting from a little before the Christian era—the population of Italy had been constantly changing. The old Roman ethnical element had become eliminated partly through the republican and imperial wars, and partly through the slave system. The degenerated half-breeds, of whom the Peninsula was full through repeated northern immigrations, degenerated, as time went on, still more and more. After that blood admixture had for the most part ceased, it took a long time for the base ethnical element which was its product to come into physiological correspondence with the country, for the adaptation of man to a new climate is a slow, a secular change.

Connection of religious ideas in Italy with its ethnical state.

But blood-degeneration implies thought-degeneration. It is nothing more than might be expected that, in this mongrel race, customs, and language, and even names should change—that rivers, and towns, and men should receive new appellations. As the great statesman to whom I have referred observes, Caesar and Pompey had disappeared; John, Matthew, and Peter had come in their stead. Barbarized names are the outward and visible signs of barbarized ideas. Those early bishops of Rome, whose dignified acts have commanded our respect, were men of Roman blood, and animated with sentiments that were truly Latin; but the succeeding pontiffs, whose lives were so infamous and thoughts so base, were engendered of half-breeds. Nor was it until the Italian population had re-established itself in a physiological relation with the country—not until it had passed through the earlier stages of national life—that manly thoughts and true conceptions could be regained.

Ideas and dogmas that would not have been tolerated for an instant in the old, pure, homogeneous Roman race, found acceptance in this adulterated, festering mass. This was the true cause of the increasing debasement of Latin Christianity. He who takes the trouble to construct a chart of the religious conceptions as they successively struggled into light, will see how close was their connection with the physiological state of the Italian ethnical element at the moment. It is a sad and humiliating succession. Mariolatry; the invoca-

Successive steps in the religious decline.

tion of saints; the supreme value of virginity; the working of miracles by relics; the satisfaction of moral crimes by gifts of money or goods to the clergy; the worship of images; Purgatory; the sale of benefices; transubstantiation, or the making of God by the priest; the materialization of God—that he has eyes, feet, hands, toes; the virtue of pilgrimages; vicarious religion, the sinner paying the priest to pray for him; the corporeality of spirits; the forbidding of the Bible to the laity; the descent to shrine-worship and fetichism; the doctrine that man can do more than his duty, and hence have a claim upon God; the sale by the priest of indulgences in sin for money.

But there is another, a very different aspect under which we must regard this Church. Enveloped as it was with the many evils of the times, the truly Christian principle which was at its basis perpetually vindicated its power, giving rise to numberless blessings in spite of the degradation and wickedness of man. As I have elsewhere (*Physiology*, page 626) remarked, "The civil law exerted an exterior power in human relations; Christianity produced an interior and moral change. The idea of an ultimate accountability for personal deeds, of which the old Europeans had an indistinct perception, became intense and precise. The sentiment of universal charity was exemplified not only in individual acts, the remembrance of which soon passes away, but in the more permanent institution of establishments for the relief of affliction, the spread of knowledge, the propagation of truth. Of the great ecclesiastics, many had risen from the humblest ranks of society, and these men, true to their democratic instincts, were often found to be the inflexible supporters of right against might. Eventually coming to be the depositaries of the knowledge that then existed, they opposed intellect to brute force, in many instances successfully, and by the example of the organization of the Church, which was essentially republican, they showed how representative systems may be introduced into the state. Nor was it over communities and nations that the Church displayed her chief power. Never in the world before was there such a system. From her central seat at Rome, her all-seeing eye, like that of Providence itself, could equally take in a hemisphere at a glance, or examine the private life of any individual. Her boundless influences enveloped kings in their palaces, and relieved the beggar at the monastery gate. In all Europe there was not a man too obscure, too insignificant, or too desolate for her. Surrounded by her solemnities, every one received his name at her altar; her bells chimed at his marriage, her knell tolled at his funeral. She extorted from him the secrets of his life at her confessionals, and punished his faults by her penances. In his hour of sickness and trouble her servants sought him out, teaching him, by her exquisite litanies and prayers, to place his reliance on God, or strengthening him for the trials of life by the example of the holy and just. Her

Statement of what
the Church had ac-
tually done.

prayers had an efficacy to give repose to the soul of his dead. When, even to his friends, his lifeless body had become an offense, in the name of God she received it into her consecrated ground, and under her shadow he rested till the great reckoning-day. From little better than a slave she raised his wife to be his equal, and, forbidding him to have more than one, met her recompense for those noble deeds in a firm friend at every fireside. Discountenancing all impure love, she put round that fireside the children of one mother, and made that mother little less than sacred in their eyes. In ages of lawlessness and rapine, among people but a step above savages, she vindicated the inviolability of her precincts against the hand of power, and made her temples a refuge and sanctuary for the despairing and oppressed. Truly she was the shadow of a great rock in many a weary land!"

This being the point which I consider the end of the Italian system as a living force in European progress, its subsequent operation being directed to the senses and not to the understanding, it will not be amiss if for a moment we extend our view to later times and to circumstances beyond the strict compass of this book, endeavoring to ascertain therefrom the condition of the Church, especially as to many devout persons it may doubtless appear that she has lost none of her power.

*Analysis of
the career of
the Church.*

On four occasions there have been revolts against the Italian Church system: 1st, in the thirteenth century, the Albigensian; 2d, in the fourteenth, the Wiclifite; 3d, in the sixteenth, the Reformation; 4th, in the eighteenth, at the French Revolution. On each of these occasions ecclesiastical authority has exerted whatever offensive or defensive power it possessed. Its action is a true indication of its condition at the time. Astronomers can determine the orbit of a comet or other celestial meteor by three observations of its position seen from the earth, and taken at intervals apart.

*Four revolts
against the
Italian system.*

1st. Of the Albigensian revolt. We have ascertained that the origin of this is distinctly traceable to the Mohammedan influences of Spain, through the schools of Cordova and Granada, pervading Languedoc and Provence. Had these agencies produced only the gay scenes of chivalry and courtesy as their material results, and, as their intellectual, war-ballads, satires, and amorous songs, they had been excused; but, along with such elegant frivolities, there was something of a more serious kind. A popular proverb will often betray national belief, and there was a proverb in Provence, "Viler than a priest." The offensive sectaries also quoted, for the edification of the monks, certain texts, to the effect "that, if a man will not work, neither let him eat." The event, in the hands of Simon de Montfort, taught them that there is such a thing as wresting Scripture to one's own destruction.

The Albigensian revolt.

How did the Church deal with this Albigensian heresy? As those do who have an absolutely overwhelming power. She did not crush it—that would have been too indulgent; she absolutely annihilated it. Awake to what must necessarily ensue from the imperceptible spread of such opinions, she remorselessly consumed its birth-place with fire and sword; and, fearful that some fugitives might have escaped her vigilant eye, or that heresy might go wherever a bale of goods might be conveyed, she organized the Inquisition, with its troops of familiars and spies. Six hundred years have elapsed since these events, and the south of France has never recovered from the blow.

That was a persecution worthy of a sovereign—a persecution conducted on sound Italian principles of policy—to consider clearly the end to be attained, and adopt the means thereto without any kind of concern as to their nature. But it was a persecution that implied the possession of unlimited and irresponsible power.

2d. Of the revolt of Wiclif. We have also considered the state of affairs which aroused the resistance of Wiclif. It is manifested by legal enactments early in the fourteenth century, such as that ecclesiastics shall not go armed, nor join themselves with thieves, nor frequent taverns, nor chambers of strumpets, nor visit nuns, nor play at dice, nor keep concubines—by the Parliamentary bill of 1376, setting forth that the tax paid in England to the pope for ecclesiastical dignities is fourfold as much as that coming to the king from the whole realm; that alien clergy, who have never seen nor care to see their flocks, convey away the treasure of the country—by the homely preaching of John Ball, that all men are equal in the sight of God. Wiclif's opposition was not only directed against corruptions of discipline in the Church, but equally against doctrinal errors. His dogma that "God bindeth not men to believe any thing they can not understand" is a distinct imbecility of the rights of reason, and the noble purpose he carried into execution of translating the Bible from the Vulgate shows in what direction he intended the application of that doctrine to be made. Through the influence of the queen of Richard the Second, who was a native of that country, his doctrines found an echo in Bohemia—Huss not only earnestly adopting his theological views, but also joining in his resistance to the despotism of the court of Rome and his exposures of the corruptions of the clergy. The political point of this revolt in England occurs in the refusal of Edward III., at the instigation of Wiclif, to do homage to the pope; the religious, in the translation of the Bible.

Though a bull was sent to London requiring the arch-heretic to be seized and put in irons, yet Wiclif died in his bed, and his bones rested quietly in the grave for forty-four years. Ecclesiastical vengeance burned them at last and scattered them to the winds.

There was no remissness in the ecclesiastical authority, but there

were victories won by the blind hero, John Zisca. After the death of that great soldier—whose body was left by the road-side to the wolves and crows, and his skin dried and made into a drum—in vain was all that perfidy could suggest and all that brutality could execute resorted to—in vain the sword and fire were passed over Bohemia, and the last effort of impotent vengeance tried in England—the heretics could not be exterminated nor the detested translation of the Bible destroyed.

3d. Of the revolt of Luther. As we shall have, in a subsequent chapter, to consider the causes that led to the Reformation, it is not necessary to anticipate them in any detail here. The necessities The revolt of Luther. of the Roman treasury, which suggested the doctrine of supererogation and the sale of indulgences as a ready means of relief, merely brought on a crisis which otherwise could not have been long postponed, the real point at issue being the right of interpretation of the Scriptures by private judgment.

The Church did not restrict her resistance to the use of ecclesiastical weapons—those of a carnal kind she also employed. Yet we look in vain for the concentrated energy with which she annihilated the Albigenses, or the atrocious policy with which the Hussites were met. The times no longer permitted of those things. But the struggle was maintained with unflinching constancy through the disasters and successes of one hundred and thirty years. Then came the peace of Westphalia, and the result of the contest was ascertained. The Church had lost the whole of northern Europe.

4th. Of the revolt of the philosophers. Besides the actual loss of the nations who openly fell away to Protestantism, a serious detriment was soon found to have befallen those still remaining nominally faithful to the Church. The fact of secession or adherence, depending, in a monarchy, on the personal caprice or policy of the sovereign, is by no means a true index of the opinions or relations of the subjects; and thus it happened that in several countries in which there was an outward appearance of agreement with the Church because of the attitude of the government, there was, in reality, a total disruption, so far as the educated and thinking classes were concerned. This was especially the case in France. The revolt of the philosophers.

When the voyage of circumnavigation of the world by Magellan had forever settled all such questions as those of the figure of the earth and the existence of the antipodes, the principles upon which the contest was composed between the conflicting parties are obvious from the most superficial perusal of the history of physics. Free thought was extorted for science, and, as its equivalent, an unmolested state for theology. It was an armed truce.

It was not through either of the parties to that conflict that new troubles arose, but through the action of a class fast rising into import-

ance—literary men. From the beginning to the middle of the last century these philosophers became more and more audacious in their attacks. Unlike the scientific, whose theological action was by implication rather than in a direct way, these boldly assaulted the intellectual basis of faith. The opportune occurrence of the American Revolution, by bringing forward, in a prominent manner, social evils and political methods for their cure, gave a practical application to the movement in Europe, and the Church was found unable to offer any kind of resistance.

From these observations of the state of the Church at four different epochs of her career, we are able to determine her movement. There is a time of abounding strength, a time of feebleness, a time of ruinous loss, a time of utter exhaustion. What a difference between the eleventh and the eighteenth centuries! It is the noontide and the evening of a day of empire.

CHAPTER XIX.

APPROACH OF THE AGE OF REASON IN EUROPE.

IT IS PRECEDED BY MARITIME DISCOVERY.

Consideration of the definite Epochs of Social Life.

Experimental Philosophy emerging in the Age of Faith.

The Age of Reason ushered in by Maritime Discovery and the rise of European Criticism.

MARITIME DISCOVERY.—*The three great Voyages.*

COLUMBUS discovers America.—**DE GAMA** doubles the Cape and reaches India.—**MAGELLAN** circumnavigates the Earth.—*The material and intellectual Results of each of these Voyages.*

DIGRESSION ON THE SOCIAL CONDITION OF AMERICA.—*In isolated human Societies the process of Thought and of Civilization is always the same.—Man passes through a determinate succession of Ideas and embodies them in determinate Institutions.—The state of Mexico and Peru proves the influence of Law in the development of Man.*

I HAVE arrived at the last division of my work, the period in national life answering to maturity in individual. The objects to be considered differ altogether from those which have hitherto occupied our attention. We have now to find human authority promoting intellectual advancement, and accepting as its maxim that the lot of man will be ameliorated, and his power and dignity increased, in proportion as he is able to comprehend the mechanism of the world, the action of natural laws, and to apply physical forces to his use.

The date at which this transition in European life was made will doubtless be differently given according as the investigator changes his point of view. In truth, there is not in national life any real epoch, because there is nothing in reality abrupt. Events, however great or sudden, are consequences of preparations long ago

Peculiarities of the Age of Reason.

Natural periods merge into one another.

made. In this there is a perfect parity between the course of national and that of individual life. In the individual, one state merges by imperceptible degrees into another, each in its beginning and end being altogether indistinct. No one can tell at what moment he ceased to be a child and became a boy—at what moment he ceased to be a youth and became a man. Each condition, examined at a suitable interval, exhibits its characteristics perfectly distinctive, but, at their common point of contact, the two so overlap and blend that, like the intermingling of shadow and light, the beginning of one and end of the other may be very variously estimated.

In individual life, since no precise natural epoch exists, society has found it expedient to establish an artificial one, as, for example, Artificial epochs. the twenty-first year. The exigencies of history may be satisfied by similar fictions. A classical critic would probably be justified in selecting for his purpose the foundation of Constantinople as the epoch of the commencement of the Age of Faith, and its capture by the Turks as the close. It must be admitted that a very large number of historical events stand in harmony with that arrangement. A political writer would perhaps be disposed to postpone the date of the latter Origin and end of the Age of Faith. epoch to that of the treaty of Westphalia, for from that time theological elements ceased to have a recognized force, Protestant, Catholic, Mohammedan consorting promiscuously together in alliance or at war, according as temporary necessities might indicate. Besides these, other artificial epochs might be assigned, each doubtless having advantages to recommend it to our notice. But, after all, the chief peculiarity is obvious enough. It is the gradual decline of a system that had been in activity for many ages, and its gradual replacement by another.

As with the Age of Reason in Greece, so with the Age of Reason in Europe, there is a prelude marked by the gradual emergence Prelude to the Age of Reason. of a sound philosophy; a true logic displaces the supernatural; experiment supersedes speculation. It is very interesting to trace the feeble beginnings of modern science in alchemy and natural magic in countries where no one could understand the writings of Alhazen or the Arabian philosophers. Out of many names that might be mentioned of those who took part in this movement, there are some that deserve recollection.

Albertus Magnus was born A.D. 1193. It was said of him that "he was great in magic, greater in philosophy, greatest in theology." By religious profession he was a Dominican. Albertus Magnus, the Dominican. Declining the temptations of ecclesiastical preferment, he voluntarily resigned his bishopric, that he might lead in privacy a purer life. As was not uncommon in those days, he was accused of illicit commerce with Satan, and many idle stories were told of the miracles he wrought. At a great banquet on a winter's day, he produced all the beauties of spring

—trees in full foliage, flowers in perfume, meadows covered with grass; but, at a word, the phantom pageant was dissolved, and succeeded by appropriate wastes of snow. This was an exaggeration of an entertainment he gave, January 6th, 1259, in the hot-house of the convent garden. He interested himself in the functions of plants, was well acquainted with what is called the sleep of flowers, studied their opening and closing. He understood that the sap is diminished in volume by evaporation from the leaves. He was the first to use the word "affinity" in its modern acceptation. His chemical studies present us with some interesting details. He knew that the whitening of copper by arsenic is not a transmutation, but only the production of an alloy, since the arsenic can be expelled by heat. He speaks of potash as an alkali; describes several acetates; and alludes to the blackening of the skin with nitrate of silver.

Contemporary with him was Roger Bacon, born A.D. 1214. His native country has never yet done him justice, though his contemporaries truly spoke of him as "the Admirable Doctor." The great friar of the thirteenth century has been eclipsed by an unworthy namesake. His claims on posterity are enforced by his sufferings and ten years' imprisonment for the cause of truth.

His history, so far as is known, may be briefly told. He was born at Ilchester, in Somersetshire, and studied at the University of Oxford. From thence he went to the University of Paris, where he took the degree of doctor of theology. He was familiar with Latin, Greek, Hebrew, and Arabic. Of mathematics he truly says that "it is the first of all the sciences; indeed, it precedes all others, and disposes us to them." In advance of his age, he denied the authority of Aristotle, and tells us that we must substitute that of experiment for it. Of his astronomical acquirements we need no better proof than his recommendation to Pope Clement IV. to rectify the Calendar in the manner actually done subsequently. If to him is rightly attributed the invention of spectacles, the human race is his debtor. He described the true theory of telescopes and microscopes, saying that lenses may be ground and arranged in such a way as to render it possible to read at incredible distances the smallest letters, and to count grains of sand and dust, because of the magnitude of the angle under which we may perceive such objects. He foresaw the greatest of all inventions in practical astronomy—the application of optical means to instruments for the measurement of angles. He proposed the propulsion of ships through the water and of carriages upon roads with great velocity, without any animal power, by merely mechanical means, and speculated upon the possibility of making a flying machine. Admitting the truth of alchemy, he advised the experimenter to find out the method by which fire makes metals and then to imitate it. He knew the four kinds of air, and tells us that there

Roger Bacon,
discoveries of.

is one which will extinguish a flame. These are very clear views for an age which mistook the gases for leather-eared ghosts. He warned us to be cautious how we conclude that we have accomplished the transmutation of metals, quaintly observing that the distance between whitened copper and pure silver is very great. He showed that air is necessary for the support of fire, and was the author of the well-known experiment illustrating that point by putting a lighted lamp under a bell-jar and observing the extinction which takes place.

There is no little significance in the expression of Friar Bacon that the ignorant mind can not sustain the truth. He was ac- Is persecuted and imprisoned. cused of magical practices and of a commerce with Satan, though, during the life of Clement IV., who was his friend, he escaped without public penalties. This pope had written to him a request that he would furnish him an account of his various inventions. In compliance therewith, Bacon sent him the "Opus Majus" and other works, together with several mathematical instruments which he had made, as Newton did, with his own hands. But, under the pontificate of Nicolas III., the accusation of magic, astrology, and selling himself to the Devil was again pressed, one point being that he had proposed to construct astronomical tables for the purpose of predicting future events. Apprehending the worst, he tried to defend himself by his composition "De Nullitate Magiæ." "Because these things are beyond your comprehension, you call them the works of the Devil; your theologians and canonists abhor them as the productions of magic, regarding them as unworthy of a Christian." But it was in vain. His writings were condemned as containing dangerous and suspected novelties, and himself committed to prison. There he remained for ten years, until, broken in health, he was released from his punishment by the intercession of some powerful and commiserating personages. He died at the age of seventy-eight years. On his death-bed he uttered the melancholy complaint, "I repent now that I have given myself so much trouble for the love of science." If there be found in his works sentiments that are more agreeable to the age in which he lived than to ours, let us recollect what he says in his third letter to Pope Clement: "It is on account of the ignorance of those with whom I have had to deal that I have not been able to accomplish more."

A number of less conspicuous though not unknown names succeed to Bacon. There is Raymond Lully, who was said to Minor alchemists of England, France, and Germany. have been shut up in the Tower of London and compelled to make gold for Edward II.; Guidon de Montanor, the inventor of the philosopher's balm; Clopinel, the author of the romance of the Rose; Richard the Englishman, who makes the sensible remark that he who does not join theory to practice is like an ass eating hay and not reflecting on what he is doing; Master Ortholan, who describes very

prettily the making of nitric acid, and approaches to the preparation of absolute alcohol under the title of the quintessence of wine; Bernard de Treves, who obtained much reputation for the love-philters he prepared for Charles V. of France, their efficacy having been ascertained by experiments made on servant-girls; Bartholomew, the Englishman who first described the method of crystallizing and purifying sugar; Eck de Sulzbach, who teaches how metallic crystallizations, such as the tree of Diana, a beautiful silvery vegetation, may be produced. He proved experimentally that metals, when they oxidize, increase in weight; and says that in the month of November, A.D. 1489, he found that six pounds of an amalgam of silver heated for eight days augmented in weight three pounds. His number is, of course, erroneous, but his explanation is very surprising. "This augmentation of weight comes from this, that a spirit is united with the metal; and what proves it is that this artificial cinnabar, submitted to distillation, disengages that spirit." He was within a hair's-breadth of anticipating Priestley and Lavoisier by three hundred years.

The alchemists of the fifteenth century not only occupied themselves with experiment; some of them, as Augurelli, aspired to poetry. He undertook to describe in Latin verses the art of making gold. His book, entitled "*Chrysopoeia*," was dedicated to Leo X., a fact which shows the existence of a greater public liberality of sentiment at the commencement of the sixteenth century than heretofore. It is said that the author expected the holy father to make him a handsome recompense, but the good-natured pope merely sent him a large empty sack, saying that he who knew how to make gold so admirably only needed a purse to put it in.

The celebrated work of Basil Valentine, entitled "*Currus triumphalis Antimonii*," introduced the metal antimony into the practice of medicine. The attention of this author was first directed to the therapeutical relations of the metal by observing that some swine, to which a portion of it had been given, grew fat with surprising rapidity. There were certain monks in his vicinity who, during the season of Lent, had reduced themselves to the last degree of attenuation by fasting and other corporeal mortifications. On these Basil was induced to try the powers of the metal. To his surprise, instead of recovering their flesh and fatness, they were all killed; hence the name popularly given to the metal, *antimoine*, because it does not agree with the constitution of a monk. Up to this time it had passed under the name of *stibium*. With a result not very different was the application of antimony in the composition of printer's type-metal. Administered internally or thus mechanically used, this metal proved equally noxious to ecclesiastics.

It is scarcely necessary to continue the relation of these scientific

trifles. Enough has been said to illustrate the quickly-spreading taste for experimental inquiry. I now hasten to the description of more important things. The new epoch.

In the limited space of this book I must treat these subjects, not as they should be dealt with philosophically, but in the manner that circumstances permit. Even with this imperfection, their description spontaneously assumes an almost dramatic form, the facts offering themselves to all reflecting men with an air of surpassing dignity. On one hand it is connected with topics the most sublime, on the other it descends to incidents the most familiar and useful; on one hand it elevates our minds to the relations of suns and myriads of worlds, on the other it falls to the every-day acts of our domestic and individual life; on one hand it turns our thoughts to a vista of ages so infinite that the vanishing point is in eternity, on the other it magnifies into importance the transitory occupation of a passing hour. Knowing how great are the requirements for the right treatment of such topics, I might shrink from this portion of my book with a conviction of incapacity. I enter upon it with hesitation, trusting rather to the considerate indulgence of the reader than to any worthiness in the execution of the work. Difficulty of treating it scientifically.

In the history of the philosophical life of Greece, we have seen (Chapter II.) how important were the influences of maritime discovery and the rise of criticism. Conjointly they closed the Greek Age of Faith. In the life of Europe, at the point we have now reached, they came into action again. As on this occasion the circumstances connected with them are numerous and important, I shall consider them separately in this and the following chapter. And, first, of maritime enterprise, which was the harbinger of the Age of Reason in Europe. Approach of the Age of Reason. It gave rise to three great voyages—the discovery of America, the doubling of the Cape, and the circumnavigation of the earth.

At the time of which we are speaking, the commerce of the Mediterranean was chiefly in two directions. The ports of the Black Sea furnished suitable depôts for produce brought down the Tanaïs and other rivers, and for a large portion of the India trade that had come across the Caspian. The seat of this commerce was Genoa. State of Mediterranean trade.

The other direction was the southeast. The shortest course to India was along the Euphrates and the Persian Gulf, but the Red and Arabian seas offered a cheaper and safer route. In the ports of Syria and Egypt were therefore found the larger part of the commodities of India. This trade centred in Venice. A vast development had been given to it through the Crusades, the Venetians probably finding in the transport service of the Holy Wars as great a source of profit as in the India trade.

Toward the latter part of the fourteenth century it became apparent that the commercial rivalry between Venice and Genoa would terminate to the disadvantage of the latter. The irruption of the Tartars and invasion of the Turks had completely dislocated her Asiatic lines of trade. In the wars between the two republics Genoa had suffered severely. Partly for this reason, and partly through the advantageous treaties that Venice had made with the sultans, giving her the privilege of consulates at Alexandria and Damascus, this republic had at last attained a supremacy over all competitors. The Genoese establishments on the Black Sea had become worthless.

With ruin before them, and unwilling to yield their Eastern connections, the merchants of Genoa had tried to retrieve their affairs by war; her practical sailors saw that she might be re-established in another way.

Rivalry of Genoa and Venice. There were among them some who were well acquainted with the globular form of the earth, and with what had been done by the Mohammedan astronomers for determining its circumference by the measurement of a degree on the shore of the Red Sea. These men originated the attempt to reach India by sailing to the west.

Attempt to reach India by the west. By two parties, the merchants and the clergy, their suggestions were received with little favor. The former gave no encouragement, perhaps because such schemes were unsuited to their existing arrangements; the latter disliked them because of their suspected irreligious nature. The globular form had been condemned by such fathers as Lactantius and Augustine. In the Patristic Geography the earth is a flat surface bordered by the waters of the sea, on the yielding support of which rests the crystalline dome of the sky. These doctrines were for the most part supported by passages from the Holy Scriptures, perversely wrested from their proper meaning. Thus Cosmas Indicopleustes, whose Patristic Geography had been an authority for nearly eight hundred years, unanswerably disposed of the sphericity of the earth by demanding of its advocates how, in the day of judgment, men on the other side of a globe could see the Lord descending through the air!

Among the Genoese sailors seeking the welfare of their city was one destined for immortality—Christopher Columbus.

Columbus, early life of. His father was a wool-comber, yet not a man of the common sort, for he procured for his son a knowledge of arithmetic, drawing, painting; and Columbus is said to have written a singularly beautiful hand. For a short time he was at the University of Pavia, but he went to sea at fourteen. After being engaged in the Syrian trade for many years, he had made several voyages to Guinea, occupying his time when not at sea in the construction of charts for sale, thereby supporting not only himself, but also his aged father, and finding means for the education of his brothers. Under these circumstances he

had obtained a competent knowledge of geography, and, though the state of public opinion at the time did not permit such doctrines to be openly avowed, he believed that the sea is every where navigable, that the earth is round and not flat, that there are antipodes, that the torrid zone is habitable, and that there is a proportionable distribution of land in the northern and southern hemispheres. Adopting the Patristic logic when it suited his purpose, he reasoned that since the earth is made for man, it is not likely that its surface is too large-ly covered with water, and that, if there are lands, they must be inhabited, since the command was renewed at the flood that man should replenish the earth. He asked, "Is it likely that the sun shines upon nothing, and that the nightly watches of the stars are wasted on trackless seas and desert lands?" But to this reasoning he added facts that were more substantial. One Martin Vincent, who had sailed many miles to the west of the Azores, related to him that he had found, floating on the sea, a piece of timber carved evidently without iron. Another sailor, Pedro Correa, his brother-in-law, had met with enormous canes. On the coast of Flores the sea had cast up two dead men with large faces, of a strange aspect. Columbus appears to have formed his theory that the East Indies could be reached by sailing to the west about A.D. 1474. He was at that time in correspondence with Toscanelli, the Florentine astronomer, who held the same doctrine, and who sent him a map or chart constructed on the travels of Marco Polo. He offered his services first to his native city, then to Portugal, then to Spain, and, through his brother, to England; his chief inducement in each instance being that the riches of India might be thus secured. In Lisbon he had married. While he lay sick near Belem an unknown voice whispered to him in a dream, "God will cause thy name to be wonderfully resounded through the earth, and will give thee the keys of the gates of the ocean, which are closed with strong chains." The death of his wife appears to have broken the last link which held him to Portugal, where he had been since 1470. One evening, in the autumn of 1485, a man of majestic presence, pale, care-worn, and, though in the meridian of life, with silver hair, leading a little boy by the hand, asked alms at the gate of the Franciscan convent near Palos—not for himself, but only a little bread and water for his child. This was that Columbus destined to give to Europe a new world.

In extreme poverty, he was making his way to the Spanish court. After many wearisome delays his suit was referred to a council at Salamanca, before whom, however, his doctrines were confuted from the Pentateuch, the Psalms, the Prophecies, the Gospels, the Epistles, and the writings of the fathers—St. Chrysostom, St. Augustine, St. Jerome, St. Gregory, St. Basil, St. Ambrose. Moreover, they were demonstrably inconsistent with reason; since, if even he should

His argument for
lands to the west.

Is confuted by
the Council of
Salamanca.

depart from Spain, "the rotundity of the earth would present a kind of mountain up which it was impossible for him to sail, even with the fairest wind;" and so he could never get back. The Grand Cardinal of Spain had also indicated their irreligious nature, and Columbus began to fear that, instead of receiving aid as a discoverer, he should fall into trouble as a heretic. However, after many years of mortification and procrastination, he at length prevailed with Queen Isabella; and on April 17, 1492, in the field before Granada, then just wrenched from the Mohammedans by the arms of Ferdinand and Isabella, he received his commission. With a nobleness of purpose, he desired no reward unless he should succeed; but, in that case, stipulated that he should have the title of Admiral and Viceroy, and that his perquisite should be one tenth of all he should discover—conditions which show what manner of man this great sailor was. He had bound himself to contribute one eighth to the expenses of the expedition: this he accomplished through the Pinzons of Palos, an old and wealthy seafaring family. These arrangements once ratified, he lost not a moment in completing the preparations for his expedition. The royal authority enabled him to take—forcibly, if necessary—both ships and men. But even with that advantage he would hardly have succeeded if the Pinzons had not joined heartily with him, personally sharing in the dangers of the voyage.

The sun, by journeying to the west, rises on India at last. On Friday, August 3, 1492, the weary struggles and heart-sickness of eighteen years of supplication were over, and, as the day was breaking, Columbus sailed with three little ships from Palos, carrying with him charts constructed on the basis of that which Toscanelli had formerly sent, and also a letter to the Grand Khan of Tartary. On the 9th he saw the Canaries, being detained among them three weeks by the provisioning and repairing of his ships. He left them September 6th, escaping the pursuit of some caravels sent out by the Portuguese government to intercept him. He now steered due west. Nothing of interest occurred until nightfall on September 13th, when he remarked with surprise that the needle, which the day before had pointed due north, was varying half a point to the west, the effect becoming more and more marked as the expedition advanced. He was now beyond the track of any former navigator, and with no sure guide but the stars; the heaven was every where, and every where the sea. On Sunday, 16th, he encountered many floating weeds, and picked up what was mistaken for a live grasshopper. For some days the weeds increased in quantity, and retarded the sailing of the ships. On the 19th two pelicans flew on board. Thus far he had had an easterly wind; but on September 20th it changed to southwest, and many little birds, such as those that si chards, were seen. His men now be-

Queen Isabel-
la adopts his
views.

The expedition
prepared.

The voyage across
the Atlantic.

came mutinous, and reproached the king and queen for trusting to "this bold Italian, who wanted to make a great lord of himself at the price of their lives."

On September 25th Pinzon reported to him that he thought he saw land; but it proved to be only clouds. With great difficulty he kept down his mutinous crew. On October 2d he observed the sea-weeds drifting from east to west. Pinzon having seen in the *Pinta* a flight of parrots going to the southwest, the course was altered on October 7th, and he steered after them west-southwest; he had hitherto been on the parallel 26° N. On the evening of October 11th the signs of land had become so unmistakable that, after vesper hymn to the Virgin, he made an address of congratulation to his crew, and commended watchfulness to them. His course was now due west. A little before mid-
 night, Columbus, on the forecastle of his ship, saw a moving Discovery of America. light at a distance; and two hours after a signal-gun was fired from the *Pinta*. A sailor, Rodrigo de Triana, had descried land. The ships were laid to. As soon as day dawned they made it out to be a verdant island. There were naked Indians upon the beach watching their movements. At sunrise, October 12, 1492, the boats were manned and armed, and Columbus was the first European to set foot on the new tropical world.

The chief events of the voyage of Columbus were, 1st. The discovery of the line of no magnetic variation, which, as we shall see, eventually led to the circumnavigation of the earth. 2d. The Events of the voyage. navigability of the sea to the remote west, the weeds not offering any insuperable obstruction. When the ships left Palos it was universally believed that the final border or verge of the earth is where the western sky rests upon the sea, and the air and clouds, fogs and water are commingled. Indeed, that boundary could not actually be attained; for, long before it was possible to reach it, the sea was confused with inextricable weeds, through which a ship could not pass. This legend was perhaps derived from the stories of adventurous sailors, who had been driven by stress of weather toward the Sargasso Sea, and seen an island of weeds many hundreds of square miles in extent—green meadows floating in the ocean. 3d. As to the new continent, Columbus never knew the nature of his own discovery. He died in the belief that it was actually some part of Asia, and Americus Vesputius entertained the same misconception. Their immediate successors supposed that Mexico was the Quinsay, in China, of Marco Polo. For this reason I do not think that the severe remark that the "name of America is a monument of human injustice" is altogether merited. Had the true state of things been known, doubtless the event would have been different. The name of America first occurs in an edition of Ptolemy's Geography, on a map by Hylacomylus.

Two other incidents of no little interest followed this successful voyage: the first was the destruction of Patristic Geography; the second was the consequence of the flight of Pinzon's parrots. Though, as we now know, the conclusion that India had been reached was not warranted by the facts, it was on all sides admitted that the old doctrine was overthrown, and that the admiral had reached Asia by sailing to the west. This necessarily implied the globular form of the earth. As to the second, never was an augury more momentous than that flight of parrots. It has been well said that this event determined the distribution of Latin and German Christianity in the New World.

The discovery of America by Leif, the son of Eric the Red, A.D. 1000, can not diminish the claims of Columbus. The wandering Scandinavians had reached the shores of America first in the vicinity of Nantucket, and had given the name of Vinland to the region extending from beyond Boston to the south of New York. But the memory of these voyages seems totally to have passed away, or the lands were confounded with Greenland, to which Nicolas V. had appointed a bishop A.D. 1448. Had these traditions been known to or respected by Columbus, he would undoubtedly have steered his ships more to the north.

Immediately on the return of Columbus, March 15, 1493, the King and Queen of Spain dispatched an ambassador to Pope Alexander VI. for the purpose of insuring their rights to the new territories, on the same principle that Martin V. had already given to the King of Portugal possession of all lands he might discover between Cape Bojador and the East Indies, with plenary indulgence for the souls of those who perished in the conquest. The pontifical action was essentially based on the principle that pagans and infidels have no lawful property in their lands and goods, but that the children of God may rightfully take them away. The bull that was issued bears date May, 1493. Its principle is, that all countries under the sun are subject of right to papal disposal. It gives to Spain, in the fullness of apostolic power, all lands west and south of a line drawn from the Arctic to the Antarctic pole, one hundred leagues west of the Azores. The donation includes, by the authority of Almighty God, whatever there is toward India, but saves the existing rights of any Christian princes. It forbids, under pain of excommunication, any one trading in that direction, threatening the indignation of Almighty God and his holy apostles Peter and Paul. It directs the barbarous nations to be subdued, and no pains to be spared for reducing the Indians to Christianity.

This suggestion of the magnetic variation was due to Columbus, who is the author of the error of supposing it to be immovable. The pontiff not extending to matters

End of Patristic Geography.

Previous Scandinavian discovery.

The papal grant to Spain.

The magnetic line of no variation.

of science, he committed the same mistake. In a few years it was discovered that the line of no variation was slowly moving to the east. It coincided with the meridian of London in 1662.

The obstacles that Patristic Geography had thrown in the way of maritime adventure were thus finally removed, but Patristic Ethnology led to a fearful tragedy. With a critical innocence that seems to have overlooked physical impossibilities and social difficulties, it had been the practice to refer the peopling of nations to legendary heroes or to the patriarchs of Scripture. The French were descended from Francus, the son of Hector; the Britons from Brutus, the son of Æneas; the genealogy of the Saxon kings could be given up to Adam; but it may excite our mirthful surprise that the conscientious Spanish chronicles could rise no higher than to Tubal, the grandson of Noah. The divisions of the Old World, Asia, Africa, and Europe, were assigned to the three sons of Noah, Shem, Ham, and Japheth; and the parentage of those continents was given to those patriarchs respectively. In this manner all mankind were brought into a family relationship, all equally the descendants of Adam, equally participators in his sin and fall. As long as it was supposed that the lands of Columbus were a part of Asia there was no difficulty; but when the true position and relations of the American continent were discovered, that it was separated from Asia by an impassable waste of waters of many thousand miles, how did the matter stand with the new-comers thus suddenly obtruded on the scene? The voice of the fathers was altogether against the possibility of their Adamic descent. St. Augustine had denied the globular form and the existence of Antipodes; for it was impossible that there should be people on what was thus vainly asserted to be the other side of the earth, since none such are mentioned in the Scriptures. The lust of gold was only too ready to find its justification in the obvious conclusion; and the Spaniards, with an appalling atrocity, proceeded to act toward these unfortunates as though they did not belong to the human race. Already their lands and goods had been taken from them by apostolic authority. Their persons were next seized, under the text that the heathen are given as an inheritance, and the uttermost parts of the earth for a possession. It was one unspeakable outrage, one unutterable ruin, without discrimination of age or sex. They who died not under the lash in a tropical sun died in the darkness of the mine. From sequestered sand-banks, where the red flamingo fishes in the gray of the morning; from fever-stricken mangrove thickets, and the gloom of impenetrable forests; from hiding-places in the clefts of rocks, and the solitude of invisible caves; from the eternal snows of the Andes, where there was no witness but the all-seeing sun, there went up to God a cry of human despair. By millions upon millions, whole races and na-

Patristic ethnical ideas.

Denial that the Indians are men.

The American tragedy.

tions were remorselessly cut off. The Bishop of Chiapa affirms that more than fifteen millions were exterminated in his time! From Mexico and Peru a civilization that might have instructed Europe was crushed out. Is it for nothing that Spain has been made a hideous skeleton among living nations, a warning spectacle to the world? Had not her punishment overtaken her, men would have surely said, "There is no retribution, there is no God!" It has been her evil destiny to ruin two civilizations, Oriental and Occidental, and to be ruined thereby herself. With circumstances of dreadful barbarity she expelled the Moors, who had become children of her soil by as long a residence as the Normans have had in England from William the Conqueror to our time. In America she destroyed races more civilized than herself. Expulsion and emigration have deprived her of her best blood, her great cities have sunk into insignificance, and towns that once had more than a million of inhabitants can now only show a few scanty thousands.

The discovery of America agitated Europe to its deepest foundations. All classes of men were affected. The populace went wild at once with a lust of gold and a love of adventure. Well might Pomponius Lætus, under process for his philosophical opinions in Rome, shed tears of joy when tidings of the great event reached him; well might Leo X., a few years later, sit up till far in the night reading to his sister and his cardinals the "Oceanica" of Anghiera.

If Columbus failed in his attempt to reach India by sailing to the west, Vasco de Gama succeeded by sailing to the south. He doubled the Cape of Good Hope, and retraced the track of the ships of Pharaoh Necho, which had accomplished the same undertaking two thousand years previously. The Portuguese had been for long engaged in an examination of the coast of Africa under the bull of Martin V., which recognized the possibility of reaching India by passing round that continent. It is an amusing instance of making scientific discoveries by contract, that King Alphonso made a bargain with Ferdinand Gomez, of Lisbon, for the exploration of the African coast, the stipulation being that he should discover not less than three hundred miles every year, and that the starting-point should be Sierra Leone.

We have seen that a belief in the immobility of the line of no magnetic variation had led Pope Alexander VI. to establish a perpetual boundary between the Spanish and Portuguese possessions and fields of adventure. That line he considered to be the natural boundary between the eastern and western hemispheres. An accurate determination of longitude was therefore a national as well as a nautical question. Columbus had relied on astronomical methods; Gilbert at a subsequent period proposed to determine it by magnetical ob-

Vasco de Gama.
African coasting
voyages.

Papal confines
of Spain and
Portugal.

servations. The variation itself could not be accounted for on the doctrine vulgarly received, that magnetism is an effluvium issuing forth from the root of the tail of the Little Bear, but was scientifically, though erroneously, explained by Gilbert's hypothesis that earthy substance is attractive—that a needle approaching a continent will incline toward it; and hence that in the midst of the Atlantic, being equally disturbed by Europe and America, it will point evenly between both.

Pedro de Covilho had sent word to King John II., from Cairo, by two Jews, Rabbi Abraham and Rabbi Joseph, that there was a south cape of Africa which could be doubled. They brought with them an Arabic map of the African coast. This was about the time that Bartholomew Diaz had reached the Cape in two little pinnaces of fifty tons apiece. He sailed August, 1486, and returned December, 1487, with an account of his discovery. Covilho had learned from the Arabian mariners, who were perfectly familiar with the east coast, that they had frequently been at the south of Africa, and that there was no difficulty in passing round the continent that way.

A voyage to the south is even more full of portents than one to the west. The accustomed heavens seem to sink away, and new stars are nightly approached. Vasco de Gama set sail July 9, 1497, with three ships and 160 men, having with him the Arab map. King John had employed his Jewish physicians, Roderigo and Joseph, to devise what help they could from the stars. They applied the astrolabe to marine use, and constructed tables. These were the same doctors who had told him that Columbus would certainly succeed in reaching India, and advised him to send out a secret expedition in anticipation, which was actually done, though it failed through want of resolution in its captain. Encountering the usual difficulties, tempestuous weather and a mutinous crew, who conspired to put him to death, De Gama succeeded, November 20, in doubling the Cape. On March 1 he met seven small Arab vessels, and was surprised to find that they used the compass, quadrants, sea-charts, and "had divers maritime mysteries not short of the Portugals." With joy he soon after recovered sight of the northern stars, for so long unseen. He now bore away to the northeast, and on May 19, 1498, reached Calicut, on the Malabar coast.

The consequences of this voyage were to the last degree important. The commercial arrangements of Europe were completely dislocated; Venice was deprived of her mercantile supremacy; the hatred of Genoa was gratified; prosperity left the Italian towns; Egypt, hitherto supposed to possess a pre-eminent advantage as offering the best avenue to India, suddenly lost her position; the commercial monopolies so long in the hands of the European Jews were broken down. The discovery of America and passage of the Cape were the

first steps of that prodigious maritime development soon exhibited by Western Europe. And since commercial prosperity is forthwith followed by the production of men and concentration of wealth, and, moreover, implies an energetic intellectual condition, it appeared before long that the three centres of population, of wealth, of intellect, were shifting westwardly. The front of Europe was suddenly changed; the British islands, hitherto in a sequestered and eccentric position, were all at once put in the van of the new movement.

Commercial rivalry had thus passed from Venice and Genoa to Spain and Portugal. The circumnavigation of the earth originated in a dispute between these kingdoms respecting the Molucca Islands, from which nutmegs, cloves, and mace were obtained. Ferdinand Magellan had been in the service of the King of Portugal; but an application he had made for an increase of half a ducat a month in his stipend having been refused, he passed into the service of the King of Spain along with one Ruy Falero, a friend of his, who, among the vulgar, bore the reputation of a conjurer or magician, but who really possessed considerable astronomical attainments, devoting himself to the discovery of improved means for finding the place of a ship at sea. Magellan persuaded the Spanish government that the Spice Islands could be reached by sailing to the west, the Portuguese having previously reached them by sailing to the east, and, if this were accomplished, Spain would have as good a title to them, under the bull of Alexander VI., as Portugal. Five ships, carrying 237 men, were accordingly equipped, and on August 10, 1519, Magellan sailed from Seville. The *Trinitie* was the admiral's ship, but the *San Vittoria* was destined for immortality. He struck boldly for the southwest, not crossing the trough of the Atlantic as Columbus had done, but passing down the length of it, his aim being to find some cleft or passage in the American continent through which he might sail into the Great South Sea. For seventy days he was becalmed under the line. He then lost sight of the north star, but courageously held on toward the "pole antartike." He nearly foundered in a storm, "which did not abate till the three fires called St. Helen, St. Nicholas, and St. Clare appeared playing in the rigging of the ships." In a new land, to which he gave the name of Patagoni, he found giants "of good corporature" clad in skins; one of them, a very pleasant and tractable giant, was terrified at his own visage in a looking-glass. Among the sailors, alarmed at the distance they had come, mutiny broke out, requiring the most unflinching resolution in the commander for its suppression. In spite of his watchfulness, one ship deserted him and stole back to Spain. His perseverance and resolution were at last rewarded by the discovery of the strait named by him *San Vittoria* in affec-

Ferdinand Magellan enters the Spanish service.

His great voyage commenced.

He penetrates the American continent.

tionate honor of his ship, but which, with a worthy sentiment, other sailors soon changed to "the Strait of Magellan." On November 28, 1520, after a year and a quarter of struggling, he issued forth from its western portals and entered the Great South Sea, ^{Reaches the Pacific Ocean.} shedding tears of joy, as Pigafetti, an eye-witness, relates, when he recognized its infinite expanse—tears of stern joy that it had pleased God to bring him at length where he might grapple with its unknown dangers. Admiring its illimitable but placid surface, and exulting in the meditation of its secret perils soon to be tried, he courteously imposed on it the name it is forever to bear, "the Pacific Ocean." While baffling for an entry into it, he observed with surprise that in the month of October the nights are only four hours long, and "considered, in this his navigation, that the pole antarctic hath no notable star like the pole arctic, but that there be two clouds of little stars somewhat dark in the midst, also a cross of fine clear stars, but that here the needle becomes so sluggish that it needs must be moved with a bit of loadstone before it will rightly point."

And now the great sailor, having burst through the barrier of the American continent, steered for the northwest, attempting to ^{The Pacific Ocean crossed.} regain the equator. For three months and twenty days he sailed on the Pacific, and never saw inhabited land. He was compelled by famine to strip off the pieces of skin and leather wherewith his rigging was here and there bound, to soak them in the sea and then soften them with warm water, so as to make a wretched food; to eat the sweepings of the ship and other loathsome matter; to drink water gone putrid by keeping; and yet he resolutely held on his course, though his men were dying daily. As is quaintly observed, their gums grew over their teeth, and so they could not eat. He estimated that he sailed over this unfathomable sea not less than 12,000 miles.

In the whole history of human undertakings there is nothing that exceeds, if indeed there is any thing that equals, this voyage of Magellan's. That of Columbus dwindles away in comparison. It is a display of superhuman courage, superhuman perseverance—a display of resolution not to be diverted from its purpose by any motive or any suffering, but inflexibly persisting to its end. Well might his despairing sailors come to the conclusion that they had entered on a trackless waste of waters, endless before them and hopeless in a return. "But, though the Church hath evermore from Holy Writ affirmed that the earth should be a wide-spread plain bordered by the waters, yet he comforted himself when he considered that in the eclipses of the moon the shadow cast of the earth is round; and as is the shadow, such, in like manner, is the substance." It was a stout heart—a heart of triple brass—which could thus, against such authority, extract unyielding faith from a shadow.

This unparalleled resolution met its reward at last. Magellan reached a group of islands north of the equator—the Ladrões. In a few days more he became aware that his labors had been successful; he met with adventurers from Sumatra. But, though he had thus grandly accomplished his object, it was not given to him to complete the circumnavigation of the globe. At an island called Zebu, or Mutan, he was killed, either, as has been variously related, in a mutiny of his men, or—as they declared—in a conflict with the savages, or insidiously by poison. “The general,” they said, “was a very brave man, and received his death-wound in his front; nor would the savages yield up his body for any ransom.” Through treason and revenge it is not unlikely that he fell, for he was a stern man; none but a very stern man could have accomplished so daring a deed. Hardly was he gone when his crew learned that they were actually in the vicinity of the Moluccas, and that the object of their voyage was fulfilled. On the morning of November 8, 1521, having been at sea two years and three months, as the sun was rising they entered Tidore, the chief port of the Spice Islands. The King of Tidore swore upon the Koran alliance to the King of Spain.

I need not allude to the wonderful objects—destined soon to become common to voyagers in the Indian Archipelago—that greeted their eyes: elephants in trappings; vases, and vessels of porcelain; birds of Paradise, “that fly not, but be blown by the wind;” exhaustless stores of the coveted spices, nutmegs, mace, cloves. And now they prepared to bring the news of their success back to Spain. Magellan’s lieutenant, Sebastian de Elcano, directed his course for the Cape of Good Hope, again encountering the most fearful hardships. Out of his slender crew he lost twenty-one men. He doubled the Cape at last; and on September 7, 1522, in the port of St. Lucar, near Seville, under his orders, the good ship *San Vittoria* came safely to an anchor. She had accomplished the greatest achievement in the history of the human race. She had circumnavigated the earth.

Magellan thus lost his life in his enterprise, and yet he made an enviable exchange. Doubly immortal, and thrice happy! for he impressed his name indelibly on the earth and the sky, on the strait that connects the two great oceans, and on those clouds of starry worlds seen in the southern heavens. He also imposed a designation on the largest portion of the surface of the globe. His lieutenant, Sebastian de Elcano, received such honors as kings can give. Of all armorial bearings ever granted for the accomplishment of a great and daring deed, his were the proudest and noblest—the globe of the world belted with the inscription, “*Primus circumdedisti me!*”

If the circumnavigation of the earth by Magellan did not lead to such splendid material results, the discovery of America and the doubling

Succeeds in
his attempt
and dies.

Circumnavi-
gation of the
earth.

Elcano, the lieuten-
ant of Magellan.

of the Cape, its moral effects were far more important. Columbus had been opposed in obtaining means for his expedition because it was suspected to be of an irreligious nature. Unfortunately, the Church, satisfying instincts impressed upon her as far back as the time of Constantine, had asserted herself to be the final arbitress in all philosophical questions, and especially in this of the figure of the earth had committed herself against its being globular. Infallibility can never correct itself—indeed, it can never be wrong. Rome never retracts any thing; and, no matter what the consequences, never recedes. It was thus that a theological dogma—infallibility—came to be mixed up with a geographical problem, and that problem liable at any moment to receive a decisive solution. So long as it rested in a speculative position, or could be hedged round with mystification, the real state of the case might be concealed from all except the more intelligent class of men; but after the circumnavigation had actually been accomplished, and was known to every one, there was, of course, nothing more to be said. It had now become altogether useless to bring forward the authority of Lactantius, of St. Augustine, or of other fathers, that the globular form is impious and heretical. Henceforth the fact was strong enough to overpower all authority, an exercise of which could have no other result than to injure itself. It remained only to permit the dispute to pass into oblivion; but even this could not occur without those who were observant being impressed with the fact that physical science was beginning to display a fearful advantage over Patristicism, and presenting unmistakable tokens that ere long she would destroy her ancient antagonist.

In the midst of these immortal works it is hardly worth speaking of minor things. Two centuries had wrought a mighty change in the geographical ideas of Western Europe. The travels of Marco Polo, about A.D. 1295, had first given some glimmering of the remote East, the interest in which was doubtless enhanced by the irruption of the Moguls. Sir John Mandeville had spent many years in the interior of Asia before the middle of the next century. Conti had traveled in Persia and India between 1419 and 1444. Cadamosto, a Venetian, in 1455 had explored the west coast of Africa. Sebastian Cabot had rediscovered Newfoundland, and, persisting in the attempt to find a northwest passage to China, had forced his way into the ice to 67° 30' N. By 1525 the American coast-line had been determined from Terra del Fuego to Labrador. New Guinea and part of Australia had been discovered. The fleet of Cabral, attempting to double the Cape of Good Hope in 1500, was driven to Brazil. A ship was sent back to Portugal with the news. Hence, had not Columbus sailed when he did, the discovery of America could not have been long postponed. Balboa saw the Great South Sea September 25th, 1513. Wading up to his

Results of the
circumnavigation.

Minor voyages
and travels.

knees in the water, with his sword in one hand and the Spanish flag in the other, he claimed that vast ocean for Castile. Nothing could now prevent the geography of the world from being completed.

I can not close these descriptions of maritime adventure without observing that they are given from the European point of view. The

Participation of other nations in these events.

Western nations have complacently supposed that what ever was unknown to them was therefore altogether unknown. We have seen that the Arabs were practically and perfectly familiar with the fact that Africa might be circumnavigated; the East Indian geography was thoroughly understood by the Buddhist priesthood, who had, on an extensive scale, carried forward their propagandism for twenty-five hundred years in those regions. But doubtless the most perfect geographical knowledge existed among the Jews, those cosmopolite traders who conducted mercantile transactions from the Azores to the interior of China, from the Baltic to the coast of Mozambique. It was actually through them that the existence of the Cape of Good Hope was first made known in Europe. Five hundred years before Columbus, the Scandinavian adventurers had discovered America, but so low was the state of intelligence in Europe that the very memory of these voyages had been altogether lost. The circumnavigation of the earth is, however, strictly the achievement of the West. I have been led to make the remarks in this paragraph, since they apply again on another occasion—the introduction of what is called the Baconian philosophy, the principles of which were not only understood, but carried into practice in the East eighteen hundred years before Bacon was born.

It is scarcely necessary that I should offer any excuse for devoting a few pages to a digression on the state of affairs in Mexico and Peru. Few things illustrate more strikingly the doctrine which it is the object of this book to teach.

The social condition of America at its discovery demonstrates that

Progress of man in the New World the same as in the Old.

similar ideas and similar usages make their appearance spontaneously in the progress of civilization of different countries, showing how little they depend on accident, how closely they are connected with the organization, and, therefore, with the necessities of man. From important ideas and great institutions down to the most trifling incidents of domestic life, so striking is the parallel between the American aborigines and Europeans that with difficulty do we divest ourselves of the impression that there must have been some intercommunication. Each was, however, pursuing an isolated and spontaneous progress; and yet how closely does the picture of life in the New World answer to that in the Old. The monarch of Mexico lived in barbaric pomp, wore a golden crown re-

Mexico: its political system.

splendent with gems; was aided in his duties by a privy council; the great lords held their lands of him by the obligation of military service. In him resided the legislative power, yet he was subject to the laws of the realm. The judges held their office independently of him, and were not liable to removal by him. The laws were reduced to writing, which, though only a system of hieroglyphics, served its purpose so well that the Spaniards were obliged to admit its validity in their courts, and to found a professorship for perpetuating a knowledge of it. Marriage was regarded as an important social engagement. Divorces were granted with difficulty. Slavery was recognized in the case of prisoners of war, debtors, and criminals, but no man could be born a slave in Mexico. No distinction of castes was permitted. The government mandates and public intelligence were transmitted by a well-organized postal service of couriers able to make two hundred miles a day. The profession of arms was the recognized avocation of the nobility, the military establishments, whether in active service in the field, or as garrisons in large towns, being supported by taxation on produce or manufactures. The armies were divided into corps of 10,000, and these again into regiments of 400. Standards and banners were used; the troops executed their evolutions to military music, and were provided with hospitals, army surgeons, and a medical staff. In the human hives of Europe, Asia, and America, the bees were marshaled in the same way, and were instinctively building their combs alike.

The religious state is a reflection of that of Europe and Asia. Their worship was an imposing ceremonial. The common people had a mythology of many gods, but the higher classes were strictly Unitarian, acknowledging one almighty, invisible Creator. Of the popular deities, the god of war was the chief. He was born of a virgin, and conceived by immaculate conception of a ball of bright-colored feathers floating on the air. The priests administered a rite of baptism to infants for the purpose of washing away their sins, and taught that there are rewards and punishments in a life to come—a paradise for the good, a hell of darkness for the wicked. The hierarchy descended by due degrees from the chief priests, who were almost equal to the sovereign in authority, down to the humble ecclesiastical servitors. Marriage was permitted to the clergy. They had monastic institutions, the inmates praying thrice a day and once at night. They practiced ablutions, vigils, penance by flagellation or pricking with aloë thorns. They compelled the people to auricular confession, required of them penance, gave absolution. Their ecclesiastical system had reached a strength which was never attained in Europe, since absolution by the priest for civil offenses was an acquittal in the eye of the law. It was the received doctrine that men do not sin of their own free will, but because they are impelled thereto by planetary influences. With sedu-

Its religion, priesthood, and ceremonies.

lous zeal, the clergy engrossed the duty of public education, thereby keeping society in their grasp. Their writing was on cotton cloth or skins, or on papyrus made of the aloe. At the conquest immense collections of this kind of literature were in existence, but the first Archbishop of Mexico burnt, as was affirmed, a mountain of such manuscripts in the market-place, stigmatizing them as magic scrolls. About the same time, and under similar circumstances, Cardinal Ximenes burnt a vast number of Arabic manuscripts in Granada.

The condition of astronomy in Mexico is illustrated as it is in Egypt by the calendar. The year was of eighteen months, each month of twenty days, five complementary ones being added to make up the three hundred and sixty-five. The month had four weeks, the week five days; the last day, instead of being for religious purposes, was market-day. To provide for the six additional hours of the year, they intercalated twelve and a half days every fifty-two years. At the conquest the Mexican calendar was in a better condition than the Spanish. As in some other countries, the clergy had for ecclesiastical purposes a lunar division of time. The day had sixteen hours, commencing at sunrise. They had sun-dials for determining the hour, and also instruments for the solstices and equinoxes. They had ascertained the globular form of the earth and the obliquity of the ecliptic. The close of the fifty-second year was celebrated with grand religious ceremonials; all the fires were suffered to go out, and new ones kindled by the friction of sticks. Their agriculture was superior to that of Europe; there was nothing in the Old World to compare with the menageries and botanical gardens of Huaxtepec, Chapultepec, Ixtapalapan, and Tezcuco. They practiced with no inconsiderable skill the more delicate mechanical arts, such as those of the jeweler and enameler. From the aloe they obtained pins and needles, thread, cord, paper, food, and an intoxicating drink. They made earthen-ware, knew how to lacquer wood, employed cochineal as a scarlet dye. They were skillful weavers of fine cloth, and excelled in the production of feather-work, their gorgeous humming-birds furnishing material for that purpose. In metallurgy they were behind the Old World, not having the use of iron; but, as the Old World had formerly done, they employed bronze in its stead. They knew how to move immense masses of rock; their great calendar stone, of porphyry, weighed more than fifty tons, and was brought a distance of many miles. Their trade was carried on, not in shops, but by markets or fairs held on the fifth day. They employed a currency of gold dust, pieces of tin, and bags of cacao. In their domestic economy, though polygamy was permitted, it was in practice confined to the wealthy. The women did not work abroad, but occupied themselves in spinning, embroidering, feather-work, music. Ablution was resorted to both before and after meals; perfumes were

Its literary condition.

Divisions of time: the week, month, year.

Private life, mechanical arts, trade.

used at the toilet. The Mexicans gave to Europe tobacco, snuff, the turkey, chocolate, cochineal. Like us, they had in their entertainments solid dishes, with suitable condiments, gravies, sauces, and desserts of pastries, confections, fruits, both fresh and preserved. They had chafing-dishes of silver or gold. Like us, they knew the use of intoxicating drinks; like us, they not unfrequently took them to excess; like us, they heightened their festivities with dancing and music. They had theatrical and pantomimic shows. At Tezcuco there was a council of music, which, moreover, exercised a censorship on philosophical works, as those of astronomy and history. In that city North American civilization reached its height. The king's palace was a wonderful work of art. It was said that 200,000 men were employed in its construction. Its harem was adorned with magnificent tapestries of feather-work; in its garden were fountains, cascades, baths, statues, alabasters, cedar groves, forests, and a wilderness of flowers. In conspicuous retirement in one part of the city was a temple, with a dome of polished black marble, studded with stars of gold, in imitation of the sky. It was dedicated to the omnipotent, invisible God. In this no sacrifices were offered, but only sweet-scented flowers and gums. The prevailing religious feeling is expressed by the sentiments of one of the kings, many of whom had prided themselves in their poetical skill: "Let us," he says, "aspire to that heaven where all is eternal, and where corruption never comes." He taught his children not to confide in idols, but only to conform to the outward worship of them in deference to public opinion.

Luxury of the higher classes.

Their monotheism and philosophical sentiments.

To the preceding description of the social condition of Mexico I shall add a similar brief account of that of Peru, for the conclusions to be drawn from a comparison of the spontaneous process of civilization in these two countries with the process in Europe is of importance to the attainment of a just idea of the development of mankind. The most competent authorities declare that the Mexicans and Peruvians were ignorant of each other's existence.

Peru—unknown to Mexico.

In one particular especially is the position of Peru interesting. It presents an analogy to Upper Egypt, that cradle of the civilization of the Old World, in this, that its sandy coast is a rainless district. This sandy-coast region is about sixty miles in width, hemmed in on the east by grand mountain ranges, which diminish in size on approaching the Isthmus of Panama, the entire length of the Peruvian empire having been nearly 2400 miles, it reached from the north of the equator to what is now known as Chili. In breadth it varied at different points. The east wind, which has crossed the Atlantic, and is therefore charged with humidity, being forced by the elevation of the South American continent, and especially by the range of the Andes, upward, is compelled to surrender most of its moisture, which finds its

Its geographical peculiarities.

way back to the Atlantic in those prodigious rivers that make the country east of the Andes the best watered region of the world; but as soon as that wind has crossed the mountain ridge and descends on the western slope, it becomes a dry and rainless wind, and hence the district intervening to the Pacific has but few insignificant streams. The sides of this great mountain range might seem altogether unadapted to the pursuit of agriculture, but the state of Peruvian civilization is at once demonstrated when it is said that these mountain slopes had become a garden, immense terraces having been constructed wherever required, and irrigation on a grander scale than that of Egypt carried on by gigantic canals and aqueducts. Advantage was taken of the different mean annual temperatures at different altitudes to pursue the cultivation of various products, for difference in height topographically answers to difference in latitude geographically, and thus, in a narrow space, the Peruvians had every variety of temperature, from that corresponding to the hottest portions of Southern Europe to that of Lapland. In the mountains of Peru, as has been graphically said, man sees "all the stars of the heavens and all the families of plants." On plateaus at a great elevation above the sea there were villages and even cities. Thus the plain upon which Quito stands, under the equator, is nearly ten thousand feet high. So great was their industry that the Peruvians had gardens and orchards above the clouds, and on ranges still higher flocks of lamas, in regions bordering on the limit of perpetual snow.

Through the entire length of the empire two great military roads were built, one on the plateau, the other on the shore. The former, for nearly 2000 miles, crossed sierras covered with snow, was thrown over ravines, or went through tunnels in the rocks; it scaled the more difficult precipices by means of stairways. Where it was possible, it was carried over the mountain clefts by filling them with masonry, or, where that could not be done, suspension bridges were used, the cables being made of osiers or maguey fibres. Some of these cables are said to have been as thick as a man, and two hundred feet long. Where such bridges could not be thrown across, and a stream flowed in the bottom of the mountain valley, the passage was made by ferry-boats or rafts. As to the road itself, it was about twenty feet in breadth, faced with flags covered with bitumen, and had mile-stones. Our admiration at this splendid engineering is enhanced when we remember that it was accomplished without iron and gunpowder. The shore road was built on an embankment, with a clay parapet on each side, and shade-trees. Where circumstances called for it, piles were used. Every six miles there was a post-house. The public couriers, could make, if necessary, two hundred miles a day. Humboldt says that they were among the

A rainless country like Egypt.

Its system of agriculture.

Its great roads and engineering.

and expresses by couriers.

most useful and most stupendous ever executed by the hand of man. The reader need scarcely be told that there were no such triumphs of skill in Spain. From the circumstance that there were no swift animals as the horse or dromedary, the width of these roads was sufficient, since they were necessarily used for foot passage alone.

In Cuzco, the metropolis, was the imperial residence of the Inca and the Temple of the Sun. It contained edifices which excited the amazement of the Spanish filibusters themselves Cuzco—the military centre.—streets, squares, bridges, fortresses surrounded by turreted walls, subterranean galleries by which the garrison could reach important parts of the town. Indeed, the great roads we have spoken of might be regarded as portions of an immense system of military works spread all over the country, and having their centre at Cuzco.

The imperial dignity was hereditary, descending from father to son. As in Egypt, the monarch not unfrequently had his sisters The Inca—the Lord of the Empire. for wives. His diadem consisted of a scarlet tasseled fringe round his brow, adorned with two feathers. He wore ear-rings of great weight. His dress of lama-wool was dyed scarlet, inwoven with gold and studded with gems. Whoever approached him bore a light burden on the shoulder as a badge of servitude, and was barefoot. The Inca was not only the representative of the temporal, but also of the spiritual power. He was more than supreme pontiff, for he was a descendant of the Sun, the god of the nation. He made laws, imposed taxes, raised armies, appointed or removed judges at his pleasure. He traveled in a sedan ornamented with gold and emeralds; the roads were swept before him, strewn with flowers, and perfumed. His The national palace. palace at Yucay was described by the Spaniards as a fairy scene. It was filled with works of Indian art; images of animals and plants decorated the niches of its walls; it had an endless labyrinth of gorgeous chambers, and here and there shady crypts for quiet retirement. Its baths were great golden bowls. It was imbosomed in artificial forests. The imperial ladies and concubines spent their time in beautifully furnished chambers, or in gardens, with cascades and fountains, grottoes and bowers. It was in what few countries can boast of, a temperate region in the torrid zone.

The Peruvian religion ostensibly consisted of a worship of the Sun, but the higher classes had already become emancipated from such a material association, and recognized the existence of Religion of Peru, its establishments and ceremonial. one almighty, invisible God. They expected the resurrection of the body and the continuance of the soul in a future life. It was their belief that in the world to come our occupations will resemble those we have followed here. Like the Egyptians, who had arrived at similar ideas, the Peruvians practiced embalming, the mummies of their Incas being placed in the Temple of the Sun at Cuzco, the kings on the right,

the queens on the left, clad in their robes of state, and with their hands crossed on their bosoms, seated in golden chairs, waiting for the day when the soul will return to reanimate the body. The mummies of distinguished personages were buried in a sitting posture under tumuli of earth. To the Supreme Being but one temple was dedicated. It was in a sacred valley to which pilgrimages were made. In the Peruvian mythology, heaven was above the sky, hell in the interior of the earth—it was the realm of an evil spirit called Cupay. The general resemblance of these to Egyptian doctrines may forcibly impress upon us that they are ideas with which the human mind necessarily occupies itself in its process of intellectual development. As in all other countries, the educated classes were greatly in advance of the common people, who were only just emerging from fetichism, and engrossed in the follies of idolatry and man-worship. Nevertheless, the government found it expedient to countenance the vulgar delusion; indeed, the political system was actually founded upon it. But the Peruvians were in advance of the Europeans in this respect, that they practiced no persecutions upon those who had become mentally emancipated. Besides the sun, the visible god, other celestial bodies were worshiped in a subordinate way. It was supposed that there were spirits in the wind, lightning, thunder; genii in the mountains, rivers, springs, and grottoes. In the great Temple of the Sun at Cuzco an image of that deity was placed so as to receive the rays of the luminary at his rising; a like artifice had been practiced in the Serapion at Alexandria. There was also a sanctuary dedicated to the Sun in the island of Titicaca, and, it is said, between three and four hundred temples of a subordinate kind in Cuzco. To the great temple were attached not less than four thousand priests and fifteen hundred vestal virgins, the latter being intrusted with the care of the sacred fire, and from them the most beautiful were chosen to pass into the Inca's seraglio. The popular faith had a ritual and a splendid ceremonial, the great national festival being at the summer solstice. The rays of the sun were then collected by a concave mirror, and fire rekindled thereby, or by the friction of wood.

As to their social system, polygamy was permitted, but practically it was confined to the higher classes. Social subordination the nobility, the people, was thoroughly understood. The Inca Tupac Yupanqui says, "Knowledge was never intended for the people, but only for those of generous blood." The nobility were of two orders, the polygamic descendants of the Incas, who were the main support of the state, and the adopted nobles of nations that had been conquered. As to the people, nowhere else in the whole world was such an extraordinary policy of supervision practiced. They were divided into groups of ten, fifty, one hundred, five hundred, one thousand, ten thousand, and over the last an Inca noble was placed. Through this system a rigid centralization was

insured, the Inca being the pivot upon which all the national affairs turned. It was an absolutism worthy of the admiration of many existing European nations. The entire territory was divided into three parts; one belonged to the Sun, one to the Inca, one to the people. As a matter of form, the subdivision was annually made; in practice, however, as perhaps must always be the result of such agrarianism, the allotments were continually renewed. All the land was cultivated by the people, and in the following order: first, that of the Sun, then that of the destitute and infirm, then that of the people, and, lastly, that of the Inca. The Sun and the Inca owned all the sheep, which were sheared, and their wool distributed to the people, or cotton furnished in its stead. The Inca's officers saw that it was all woven, and that no one was idle. An annual survey of the country, its farming and mineral products, was made, the inventory being transmitted to the government. A register was kept of births and deaths; periodically a general census was taken. The Inca, at once emperor and pope, was enabled, in that double capacity, to exert a rigorous patriarchal rule over his people, who were treated like mere children—not suffered to be oppressed, but compelled to be occupied; for, with a worldly wisdom which no other nation presents, labor was here acknowledged not only as a means, but also as an end. In Peru a man could not improve his social state; by these refinements of legislation he was brought into an absolutely stationary condition. He could neither become richer nor poorer; but it was the boast of the system that every one lived exempt from social suffering—that all enjoyed competence.

The army consisted of 200,000 men. Their weapons were bows, lances, slings, battle-axes, swords; their means of defense, shields, bucklers, helmets, and coats of quilted cotton. Each regiment had its own banner, but the imperial standard, the national emblem, was a rainbow, the offspring of the Sun. The swords and many of the domestic implements were of bronze; the arrows were tipped with quartz or bone, or points of gold and silver. A strict discipline was maintained on marching, granaries and depôts being established at suitable distances on the roads. With a policy inflexibly persisted in, the gods of conquered countries were transported to Cuzco, and the vanquished compelled to worship the Sun; their children were obliged to learn the Peruvian language, the government providing them teachers for that purpose. As an incitement, this knowledge was absolutely required as a condition for public office. To amalgamate the conquered districts thoroughly, their inhabitants were taken away by ten thousand, transported to distant parts of the empire, not, as in the Old World, to be worked to death as slaves, but to be made into Peruvians; an equal number of natives were sent in their stead, to whom, as a recompense for their dislocation, extraordinary privileges were given. It was an

Organization
of labor.

Military system :
warlike resources.

immemorial policy of the empire to maintain a profound tranquillity in the interior and perpetual war on the frontiers.

The philosophical advancement of the Peruvians was much retarded by their imperfect method of writing—a method greatly inferior to that of Egypt. A cord of colored threads, called quipus, was only indifferently suited to the purposes of enumeration, and by no means equal to hieroglyphics as a method of expressing general facts. But it was their only system. Notwithstanding this drawback, they had a literature consisting of poetry, dramatic compositions, and the like. Their scientific attainments were inferior to the Mexican. Their year was divided into months, their months into weeks. They had gnomons to indicate the solstices. One, in the form of an obelisk, in the center of a circle, on which was marked an east and west line, indicated the equinox. These gnomons were destroyed by the Spaniards in the belief that they were for idolatrous purposes, for on the national festivals it was customary to decorate them with leaves and flowers. As the national religion consisted in the worship of the Sun, it was not without reason that Quito was regarded as a holy place, from its position upon the equator.

In their extraordinary provisions for agriculture, the national pursuit, the skill of the Peruvians is well seen. A rapid elevation from the sea-level to the heights of the mountains gave them, in a small compass, every variety of climate, and they availed themselves of it. They terraced the mountain sides, filling the terraces with rich earth. They excavated pits in the sand, surrounded them with adobe walls, and filled them with manured soil. On the low level they cultivated bananas and cassava; on the terraces above, maize and quinoa; still higher, tobacco; and above that, the potato. From a comparatively limited surface, they raised great crops by judiciously using manures, employing for that purpose fish, and especially guano. Their example has led to the use of the latter substance for a like purpose in our own times in Europe. The whole civilized world has followed them in the cultivation of the potato. The Peruvian bark is one of the most invaluable remedies. Large tracts of North America would be almost uninhabitable without the use of its active alkaloid quinine, which actually, in no insignificant manner, reduces the percentage mortality throughout the United States.

Indispensably necessary to their agricultural system were their great water-works. In Spain there was nothing worthy of being compared with them. The aqueduct of Condesuya was nearly 500 miles long. Its engineers had overcome difficulties in a manner that might well strike modern times with admiration. Its water was distributed as prescribed by law; there were officers to see to its proper use. From these great water-works and from their roads it

Peruvian literature—the quipus.

Agriculture carried to perfection.

The great aqueduct of Condesuya.

may be judged that the architectural skill of the Peruvians was far from insignificant. They constructed edifices of porphyry, granite, brick; but their buildings were for the most part low, and suitable to an earthquake country.

I have dwelt at some length on the domestic history of Mexico and Peru because it is intimately connected with one of the philosophical principles which it is the object of this book to teach, viz., The stages of human development always the same. that human progress takes place under an unvarying law, and therefore in a definite way. The trivial incidents mentioned in the preceding paragraphs may perhaps have seemed insignificant or wearisome, but it is their very commonness, their very familiarity, that gives them, when rightly considered, a surprising interest. There is nothing in these minute details but what we find to be perfectly natural from the European point of view. They might be, for that matter, instead of reminiscences of the spontaneous evolution of a people shut out from the rest of the world by impassable oceans, a relation of the progress of some European or Asiatic nation. The man of America proceeded forward in his course of civilization as did the man of the Old World, devising the same institutions, guided by the same intentions, constrained by the same desires. From the great features of his social system down to the little details of his domestic life, there is a sameness with what was done in Asia, Africa, Europe. But similar results imply a similar cause. What, then, is there possessed in common by the Chinese, the Hindoo, the Egyptian, the European, the American? Surely not climate, nor equal necessities, nor equal opportunity. Simply nothing but this—corporeal organization! As automaton constructed in the same way will do the same things, so, in organic forms, sameness of structure will give rise to identity of function and similarity of acts. The same common sense guides men all over the world. Common sense is a function of common organization. All natural history is full of illustrations. It may be offensive to our pride, but it is none the less true, that in his social progress, the free-will of which man so boasts himself in his individual capacity disappears as an active influence, and the domination of general and inflexible laws becomes manifest. The free-will of the individual is supplanted by instinct and automatism in the race. To each individual bee the career is open; he may Analogy between societies of men and societies of animals. taste of this flower and avoid that; he may be industrious in the garden, or idle away his time in the air; but the history of one hive is the history of another hive; there will be a predestined organization—the queen, the drones, the workers. In the midst of a thousand unforeseen, uncalculated, variable acts, a definite result, with unerring certainty, emerges: the combs are built in a preordained way, and filled with honey at last. From bees, and wasps, and ants, and birds—from all that low animal life on which he looks with such supercilious contempt, man is destined one day to learn what in truth he really is.

For a second reason, also, I have dwelt on these details. The enormous crime of Spain in destroying this civilization has never yet been appreciated in Europe. After an attentive consideration of the facts of the case, I agree in the conclusion of Carli that at the time of the conquest the moral man in Peru was superior to the European, and I will add, the intellectual man also. In Spain, or even in all Europe, was there to be found a political system carried out into the practical details of actual life, and expressed in great public works as its outward visible and enduring sign, which could at all compare with that of Peru? Its only competitor was the Italian system, but that for long had been actively used to repress the intellectual advancement of man.

The crime of Spain in America.
In vain the Spaniards excuse their atrocities on the plea that a nation like the Mexican, which permitted cannibalism, should not be regarded as having emerged from the barbarous state, and that one which, like Peru, sacrificed human hecatombs at the funeral solemnities of great men, must have been savage. Let it be remembered that there is no civilized nation whose popular practices do not lag behind its intelligence; let it be remembered that in this respect Spain herself also was guilty. In America, human sacrifice was part of a religious solemnity, unstained by passion. The auto da fé of Europe was a dreadful cruelty; not an offering to heaven, but a gratification of spite, hatred, fear, vengeance—the most malignant passions of earth. There was no spectacle on the American continent at which a just man might so deeply blush for his race as that presented in Western Europe when the heretic from whom confession had been wrung by torture passed to his stake in a sleeveless garment, with flames of fire and effigies of an abominable import depicted upon it. Let it be remembered that by the The Spaniard and the American. Inquisition, from 1481 to 1808, 340,000 persons had been punished, and of these nearly 32,000 burnt. Let what was done in the south of France be remembered. Let it be also remembered that, considering the worthlessness of the body of man, and that, at the best, it is at last food for the worm—considering the infinite value of his immortal soul, for the redemption of which the agony and death of the Son of God was not too great a price to pay—indignities offered to the body are less wicked than indignities offered to the soul. It would be well for him who comes forward as an accuser of Mexico and Peru in their sin to dispose of the fact that at that period the entire authority of Europe was directed to the perversion, and even total repression of thought—to an enslaving of the mind, and making that noblest creation of Heaven a worthless machine. To taste of human flesh is less criminal in the eye of God than to stifle human thought.

Lastly, there is another point to which I will with brevity allude. It has been widely asserted that Mexican and Peruvian civilization was altogether a recent affair, dating at most only

Antiquity of American civilization.

two or three centuries before the conquest. It would be just as well to say that there was no civilization in India before the time of the Macedonian invasion because there exist no historic documents in that country anterior to that event. The Mexicans and Peruvians were not heroes of a romance to whom wonderful events were of common occurrence, whose lives were regulated by laws not applying to the rest of the human race, who could produce results in a day for which elsewhere a thousand years are required. They were men and women like ourselves, slowly and painfully, and with many failures, working out their civilization. The summary manner in which they have been disposed of reminds us of the amusing way in which the popular chronology deals with the hoary annals of Egypt and China. Putting aside the imperfect methods of recording events practiced by the autochthons of the Western world, he who estimates rightly the slowness with which man passes forward in his process of civilization, and collates therewith the prodigious works of art left by those two nations—an enduring evidence of the point to which they had attained—will find himself constrained to cast aside such idle assertions as altogether unworthy of confutation, or even of attention.

CHAPTER XX.

APPROACH OF THE AGE OF REASON IN EUROPE.

IT IS PRECEDED BY THE RISE OF CRITICISM.

Restoration of Greek Literature and Philosophy in Italy.—Development of Modern Languages and Rise of Criticism.—Imminent Danger to Latin Ideas.

Invention of Printing.—It revolutionizes the Communication of Knowledge, especially acts on Public Worship, and renders the Pulpit secondary.

THE REFORMATION.—*Theory of Supererogation and Use of Indulgences.—The Right of Individual Judgment asserted.—Political History of the Origin, Culmination, and Check of the Reformation.—Its Effects in Italy.*

Causes of the Arrest of the Reformation.—Internal Causes in Protestantism.—External in the Policy of Rome.—The Counter-Reformation.—Inquisition.—Jesuits.—Secession of the great Critics.—Culmination of the Reformation in America.—Emergence of Individual Liberty of Thought.

IN estimating the influences of literature on the approach of the Age of Reason in Europe, the chief incidents to be considered are the disuse of Latin as a learned language, the formation of modern tongues from the vulgar dialects, the invention of printing, the decline of the power of the pulpit, and its displacement by that of the press. These, joined to the moral and intellectual influences at that time predominating, led to the great movement known as the Reformation.

The rise of criticism.

As if to mark out to the world the real cause of its intellectual degradation, the regeneration of Italy commenced with the exile of the popes to Avignon. During their absence, so rapid was the progress that it had become altogether impossible to make any successful resistance, or to restore the old condition of things on their return to Rome. The moment that the leaden cloud which they had kept suspended over the country was withdrawn, the light from heaven shot in, and the ready peninsula became instinct with life.

The unity of the Church, and, therefore, its power, required the use of Latin as a sacred language. Through this Rome had stood in an attitude strictly European, and was enabled to maintain a general international relation. It gave her far more power than her asserted celestial authority, and, much as she claims to have done, she is open to condemnation that, with such a signal advantage in her hands, never again to be enjoyed by any successor, she did not accomplish much more. Had not the sovereign pontiffs been so completely occupied with maintaining their temporalities in Italy, they might have made the whole Continent advance like one man. Their officials could pass without difficulty into every nation, and communicate without embarrassment with each other, from Ireland to Bohemia, from Italy to Scotland. The possession of a common tongue gave them the administration of international affairs, with intelligent allies speaking the same language in all directions.

Not, therefore, without cause was the hatred manifested by Rome to the restoration of Greek and introduction of Hebrew, and the alarm with which she perceived the modern languages forming out of the aboriginal and vulgar dialects. The prevalence of Latin was the condition of her power, its deterioration the measure of her decay, its disuse the signal of her limitation to a little principality in Italy. In fact, the development of European languages was the instrument of her overthrow. Besides their forming an effectual communication between the low, dissatisfied ecclesiastics and the illiterate populace, there was not one of them that did not display in its earliest productions a sovereign contempt for her. We have seen how it was with the poetry of Languedoc.

The rise of the many-tongued European literature was therefore coincident with the decline of papal Christianity. European literature was impossible under the Catholic rule. A grand, and solemn, and imposing religious unity enforced the literary unity which is implied in the use of a single language. No more can a living thought be embodied in a dead language than activity be imparted to a corpse. That principle of stability which Italy hoped to give to Europe essentially rested on the compulsory use of a dead tongue. The first token of intellectual emancipation was the movement

of the great Italian poets, led by Dante, who often, not without irreverence, broke the spell. Unity in religion implies unity through a sacred language, and hence the non-existence of particular national literatures.

Even after Rome had suffered her great discomfiture on the scientific question respecting the motion of the earth, the conquering party was not unwilling to veil its thoughts in the Latin tongue, partly because it thereby insured a more numerous class of intelligent readers, and partly because ecclesiastical authority was now disposed to overlook what must otherwise be treated as offensive, since to write in Latin was obviously a pledge of abstaining from an appeal to the vulgar. The effect of the introduction of modern languages was to diminish intercommunication among the learned.

The movement of human affairs, for so many years silent and imperceptible, was at length coming to a crisis. An appeal to the emotions and moral sentiments at the basis of the system, the history of which has occupied us so long, had been fully made, and found ineffectual. It was now the time for a like appeal to the understanding. Each age of life has its own logic. The logic of the senses is in due season succeeded by that of the intellect. Of faith there are two kinds, one of acquiescence, one of conviction; and a time inevitably arrives when emotional faith is supplanted by intellectual.

As if to prove that the impending crisis was not the offspring of human intentions, and not occasioned by any one man, though that man might be the sovereign pontiff, Nicolás V. found in his patronage of letters and art a rival and friend in Cosmo de' Medici. An instructive incident shows how great a change had taken place in the sentiments of the higher classes: Cosmo, the richest of Italians, who had lavished his wealth on palaces, churches, hospitals, libraries, was comforted on his death-bed, not, as in former days would have been the case, by ministers of religion, but by Marsilius Ficinus, the Platonist, who set before him the arguments for a future life, and consoled his passing spirit with the examples and precepts of Greek philosophy, teaching him thereby to exchange faith for hope, forgetting that too often hopes are only the day-dreams of men, not less unsubstantial and vain than their kindred of the night. Ficinus had perhaps come to the conviction that philosophy is only a higher stage of theology, the philosopher a very enlightened theologian. He was the representative of Platonism, which for so many centuries had been hidden from the sight of men in Eastern monasteries since its overthrow in Alexandria, and which was now emerging into existence in the favoring atmosphere of Italy. His school looked back with delight, and even with devotion, to the illustrious pagan times, commemorating by a symposium on November 13th the birthday of Plato. The Academy of Athens

Effect of modern languages.

Approach of a crisis in Europe.

Cosmo de' Medici. Florence.

Reappearance of Platonism in Italy.

was revived again in the Medicean gardens of Florence. Not that Ficinus is to be regarded as a servile follower of the great philosopher. He alloyed the doctrines of Plato with others derived from a more sinister source—the theory of the Mohammedan Averrhoes, of which it was an essential condition that there is a soul of humanity, through their relations with which individual souls are capable of forming universal ideas, for such, Averrhoes asserted, is the necessary consequence of the emanation theory.

Under such auspices, and at this critical moment, occurred the revival of Greek literature in Italy. It had been neglected for more than seven hundred years. In the solitary instances of individuals to whom here and there a knowledge of that language was imputed, there seem satisfactory reasons for supposing that their acquirements amounted to little more than the ability of translating some “petty patristic treatise.” The first glimmerings of this revival appear in the thirteenth century; they are somewhat more distinct in the fourteenth. The capture of Constantinople by the Latin Crusaders had done little more than diffuse a few manuscripts and works of art along with the more highly prized monkish relics in the West. It was the Turkish pressure, which all reflecting Greeks foresaw could have no other result than the fall of the Byzantine power, that induced some persons of literary tastes to seek a livelihood and safety in Italy.

In the time of Petrarch, 1304–1374, the improvement did not amount to much. That illustrious poet says that there were not more than ten persons in Italy who could appreciate Homer. Both Petrarch and Boccace spared no pains to acquaint themselves with the lost tongue. The latter had succeeded in obtaining for Leontius Pilatus, the Calabrian, a Greek professorship at Florence. He describes this Greek teacher as clad in the mantle of a philosopher, his countenance hideous, his face overshadowed with black hair, his beard long and uncombed, his deportment rustic, his temper gloomy and inconstant, but his mind was stored with the treasures of learning. Leontius left Italy in disgust, but, returning again, was struck dead by lightning in a storm while tied to the mast of the ship. The author from whom I am quoting significantly adds that Petrarch laments his fate, but nervously asks whether “some copy of Euripides or Sophocles might not be recovered from the mariners.”

The restoration of Greek to Italy may be dated A.D. 1395, at which time Chrysoloras commenced teaching it. A few years after Aurispa brought into Italy two hundred and thirty-eight Greek manuscripts; among them were Plato and Pindar. The first endeavor was to translate such manuscripts into Latin. To a considerable extent, the religious scruples against Greek literature were giving way; the study found a patron in the pope himself, Eugenius IV. As the intention of the

Turks to seize Constantinople became more obvious, the emigration of learned Greeks into Italy became more frequent. And yet, with the exception of Petrarch, and he was scarcely an exception, not one of the Italian scholars was an ecclesiastic.

Lorenzo de' Medici, the grandson of Cosmo, used every exertion to increase the rising taste, generously permitting his manuscripts to be copied. Nor was it alone to literature that he extended his patronage. In his beautiful villa at Fiesole the philosophy of the old times was revived; his botanic garden at Careggi was filled with Oriental exotics. From 1470 to 1492, the year of his death, his happy influence continued. He lived to witness the ancient Platonism overcoming the Platonism of Alexandria, and the pure doctrine of Aristotle expelling the base Aristotelian doctrine of the schools.

The last half of the fifteenth century revealed to Western Europe two worlds, a new one and an old; the former by the voyage of Columbus, the latter by the capture of Constantinople; one destined to revolutionize the industrial, the other the religious condition. Greek literature, forced into Italy by the Turkish arms, worked wonders; for Latin Europe found with amazement that the ancient half of Christendom knew nothing whatever of the doctrine or of the saints of the West. Now was divulged the secret reason of that bitter hatred displayed by the Catholic clergy to Grecian learning. It had sometimes been supposed that the ill-concealed dislike they had so often shown to the writings of Aristotle was because of the Arab dress in which his Saracen commentators had presented him; now it appeared that there was something more important, more profound. It was a terror of the Greek itself. Very soon the direction toward which things must inevitably tend became manifest; the modern languages, fast developing, were making Latin an obsolete tongue, and political events were giving it a rival—Greek—capable of asserting over it a supremacy; and not a solitary rival, for to Greek it was clear that Hebrew would soon be added, bringing with it the charms of a hoary antiquity and the sinister learning of the Jew. With a quick, a jealous suspicion, the ecclesiastic soon learned to detect a heretic from his knowledge of Greek and Hebrew, just as is done in our day from a knowledge of physical science. The authority of the Vulgate, that corner-stone of the Italian system, was, in the expectation of Rome, inevitably certain to be depreciated; and, in truth, judging from the honors of which that great translation was soon despoiled by the incoming of Greek and Hebrew, it was declared, not with more emphasis than truth, yet not, perhaps, without irreverence, that there was a second crucifixion between two thieves. Long after the times of which we are speaking, the University of Paris resisted the introduction of Greek into its course of studies, not because of any dislike to letters, but because of its anticipated obnoxious bearing on Latin theology.

Lorenzo de' Medici, his villa, garden, and philosophy.

Effects instantly produced by the Greek language.

Causes of the prevailing dislike of Greek.

We can scarcely look in any direction without observing instances of the wonderful change taking place in the opinions of men. To that disposition to lean on a privileged mediating order, once the striking characteristic of all classes of the laity in Europe, there had succeeded a sentiment of self-reliance. Of this perhaps no better proof can be furnished than the popularity of the work reputed to have been written by Thomas à Kempis, and entitled "The Imitation of Christ." It is said to have had probably more readers than any other book except the Bible. Its quick celebrity is a proof how profoundly ecclesiastical influence had been affected, for its essential intention was to enable the pious to cultivate their devotional feeling without the intervention of the clergy. Such a work, if written in the present day, would have found an apt and popular title in "Every Man his own Priest." There is no reason for supposing that the condition to which men had at that time been brought, as the general result of Italian Christianity, was one of intense selfishness, as has been asserted; the celebrity of this book was rather dependent on a profound distrust everywhere felt in the clergy, both as regards morals and intellect. And why should we be surprised that such should be the case with the laity, when in all directions the clergy themselves were giving proof that they could not trust their own strength? They could not conceal their dread at the incoming of the Greek; they could not speak without horror of the influence of the Hebrew; they were loud in their protestations against the study of pagan philosophy, and held up to the derision and condemnation of the world science denounced by them as profane. They foresaw that that fictitious unity of which they had boasted was drawing to an end; that men would become acquainted with the existence and history of churches more ancient, and, therefore, more venerable than the Roman, and, like it, asserting an authenticity upon unimpeachable proofs. But once let sects with such an impressive prestige be introduced to the knowledge of the West, once let the appearance of inviolate unity be taken from the Latin Church, and nothing could prevent a spontaneous decomposition forthwith occurring in it. It must break up into sects, which, in their turn, must break up, in process of time, into smaller and smaller divisions, and, through this means, the European must emerge at last into individual liberty of thought. The compelling hand of ecclesiastical tyranny must be removed, and universal toleration ensue. Nor were such anticipations mere idle suspicions, for such was the course that events actually took. Scarcely had the Reformation occurred when sectarian subdivisions made their appearance, and in modern times we see that an anarchy of sects is the inevitable harbinger of individual liberty of thought.

As we have just said, it was impossible to look in any direction on the latter half of the fifteenth century without recognizing the wonder-

ful change. It had become obviously useless any longer to assert an immobility of humanity when men were standing face to face with the new forms into which it had been transposed. New ideas had driven out old ones. Natural phenomena could not again be likened to human acts, nor the necessities of man regarded as determining the movements of the universe. A better appreciation of the nature of evidence was arising, perhaps in part through the influence of the lawyers, but in part through a commencing taste for criticism. We see it in such facts as the denial that a miracle can be taken as the proof of any thing else than the special circumstances with which it is connected; we see it in the assertion that the martyrdom of men in support of a dogma, so far from proving its truth, proves rather its doubtfulness, no geometer having ever thought it worth his while to die in order to establish any mathematical proposition, truth needing no such sacrifices, which are actually unserviceable and useless to it, since it is able spontaneously to force its own way. In Italy, where the popular pecuniary interests were obviously identical with those of the Church, a dismal disbelief was silently engendering.

And now occurred an event the results of which it is impossible to exaggerate.

About A.D. 1440 the art of printing seems to have been invented in Europe. It is not material to our purpose to inquire into the particulars of its history, whether we should attribute it to Coster of Haarlaem or Gutenberg of Mentz, or whether, in reality, it was introduced by the Venetians from China, where it had been practiced for nearly two thousand years. In Venice a decree was issued in 1441 in relation to printing, which would seem to imply that it had been known there for some years. Coster is supposed to have printed the "Speculum Humanæ Salvationis" about 1440, and Gutenberg and Faust the Mentz Bible without date, 1455. The art reached perfection at once; their Bible is still admired for its beautiful typography. Among the earliest specimens of printing extant is an exhortation to take up arms against the Turks, 1454; there are also two letters of indulgence of Nicolas V. of the same date. In the beginning each page was engraved on a block of wood, but soon movable types were introduced. Impressions of the former kind pass under the name of block books; at first they were sold as manuscripts. Two of Faust's workmen commenced printing in Italy, but not until 1465; they there published an edition of "Lactantius," one of "Cicero de Officiis," and one of "Augustine de Civitate Dei." The art was carried to France 1469, and in a few years was generally practiced in all the large European towns. The printers were their own booksellers; the number of copies in each edition usually about three hundred. Folios were succeeded by quartos, and in 1501 duodecimos were introduced. Very

Higher require-
ments in evi-
dence.

Disbelief set-
ting in in It-
aly.

Invention of
printing; its
early history.

Early books
and booksell-
ers.

soon the price of books was reduced by four fifths, and existing interests required regulations not only respecting the cost, but also respecting the contents. Thus the University of Paris established a tariff for their sale, and also exercised a supervision in behalf of the Church and the State. From the outset it was clear that printing would inevitably influence the intellectual movement synchronously occurring.

Some authors have endeavored to estimate the intellectual condition of different countries in Europe at the close of the fifteenth century by the literary activity they displayed in the preparation and printing of editions of books. Though it is plain that such estimates can hardly be rigorously correct, since to print a book not only implies literary capacity, but also the connections of business and trade, and hence works are more likely to be issued in places where there is a mercantile activity, yet such estimates are perhaps the most exact that we can now obtain; they also lead us to some very interesting and unexpected results of singular value in their connection with that important epoch. Thus it appears that in all Europe, between 1470 and 1500, more than ten thousand editions of books and pamphlets were printed, and of them a majority in Italy, demonstrating that Italy was in the van of the intellectual movement. Out of this large number, in Venice there had been printed 2835; Milan, 625; Bologna, 298; Rome, 925; fifty other Italian cities had presses; Paris, 751; Cologne, 530; Nuremberg, 382; Leipsic, 351; Bâle, 320; Strasbourg, 526; Augsburg, 256; Louvain, 116; Mentz, 134; Deventer, 169; London, 130; Oxford, 7; St. Alban's, 4.

Venice, therefore, took the lead. England was in a very backward state. This conclusion is confirmed by many other circumstances, which justify the statement that Italy was as far advanced intellectually in 1400 as England in 1500. Paris exhibits a superiority sixfold over London, and in the next ten years the disproportion becomes even more remarkable, for in Paris four hundred and thirty editions were printed, in London only twenty-six. The light of learning became enfeebled by distance from its Italian focus. As late as 1550, a complete century after the establishment of the art, but seven works had been printed in Scotland, and among them not a single classic. It is an amusing proof how local tastes were consulted in the character of the books thus put forth, that the first work issued in Spain, 1474, was on the "Conception of the Virgin."

The invention of printing operated in two modes altogether distinct: first, in the multiplying and cheapening of books, and, second, in substituting reading for pulpit instruction.

First, as to the multiplication and cheapening of books, there is no reason to suppose that the supply had ever been inadequate. As, under the Ptolemies, book manufacture was carried forward

Measure of the
contemporaneous
mental state of
nations.

Italy compared
with the rest of
Europe.

Effect of printing
on literature and
the Church.

Cheapening
of books.

in the Museum at Alexandria to an extent which fully satisfied demands, so in all the great abbeys there was an apartment—the *Scriptorium*—for the copying and making of books. Such a sedentary occupation could not but be agreeable to persons of a contemplative or quiet habit of life. But Greece, Rome, Egypt—indeed, all the ancient governments except that of China, were founded upon elements among which did not appear that all-important one of modern times, a reading class. Information passed from mouth to mouth, not from eye to eye. With a limited demand, the compensation to the copier was sufficient, and the cost to the purchaser moderate. It is altogether a mistake to suppose that the methods and advantages of printing were unknown. Modifications of that art were used wherever occasion called for them. We do not need the Roman stamps to satisfy us of that fact; every Babylonian brick and signet ring is an illustration. Printing processes of various kinds were well enough known. The real difficulty was the want of paper. That substance was first made in Europe by the Spanish Moors from the fine flax of Valentia and Mercia. Cotton paper, sold as *charta Damascena*, had been previously made at Damascus, and several different varieties had long been manufactured in China.

The want of paper. Damascus paper.

Had there been more readers, paper would have been more abundantly produced, and there would have been more copiers—nay, even there would have been printers. An increased demand would have been answered by an increased supply. As soon as such a demand arose in Europe the press was introduced, as it had been thousands of years before in China.

So far as the public is concerned, printing has been an unmixed advantage; not so, however, in its bearing on authors. The longevity of books is greatly impaired, a melancholy conclusion to an ambitious intellect. The duration of many ancient books which have escaped the chances of time is to be hoped for no more. In this shortening of their term the excessive multiplication of works greatly assists. A rapid succession soon makes those of distinction obsolete, and then consigns them to oblivion. No author can now expect immortality. His utmost hope is only this, that his book may live a little longer than himself.

Longevity of books curtailed.

But it was with printing as with other affairs of the market—an increased demand gave origin to an increased supply, which, in its turn reacting, increased the demand. Cheap books bred readers. When the monks, abandoning their useless and lazy life of saying their prayers a dozen times a day, turned to the copying and illustrating of manuscripts, a mental elevation of the whole order was the result; there were more monks who could read. And so, on the greater scale, as books through the press became more abundant, there were more to whom they became a necessity.

Multiplication of books.

But, secondly, as to the change which ensued in the mode of communicating information—a change felt instantly in the ecclesiastical, and, at a later period, in the political world. The whole system of public worship was founded on the condition of a non-reading people; hence the reading of prayers and the sermon. Whoever will attentively compare the thirteenth with the nineteenth century can not fail to see how essential oral instruction was to the former, how subordinate to the latter. The invention of the printing-press gave an instant, a formidable rival to the pulpit. It made possible that which had been impossible before in Christian Europe—direct communication between the government and the people without any religious intermedium, and was the first step in that important change subsequently carried out in America, the separation of Church and State. Though in this particular the effect was desirable, in another its advantages are doubtful, for the Church adhered to her ancient method when it had lost very much of its real force, and this even at the risk of falling into a lifeless and impassive condition.

And yet we must not undervalue the power once exercised on a non-reading community by oral and scenic teachings. What could better instruct it than a formal congregating of neighborhoods together each Sabbath-day to listen in silence and without questioning? In those great churches, the architectural grandeur of which is still the admiration of our material age, nothing was wanting to impress the worshiper. The vast pile, with its turrets or spire pointing to heaven; its steep inclining roof; its walls, with niches and statues; its echoing belfry; its windows of exquisite hues and of every form, lancet, or wheel, or rose, through which stole in the many-colored light; its chapels, with their pictured walls; its rows of slender, clustering columns, and arches tier upon tier; its many tapering pendants; the priest emerging from his scenic retreat; his chalice and forbidden wine; the covering paten, the cibory, and the pix. Amid clouds of incense from smoking censers, the blaze of lamps, and tapers, and branching candlesticks, the tinkling of silver bells, the play of jeweled vessels and gorgeous dresses of violet, green, and gold, banners and crosses were borne aloft through lines of kneeling worshipers in processional services along the aisles. The chanting of litanies and psalms gave a foretaste of the melodies of heaven, and the voices of the choristers and sounds of the organ now thundered forth glory to God in the highest, now whispered to the broken in spirit peace.

If such were the influences in the cathedral, not less were those that gathered round the little village church. To the peasant it was endeared by the most touching incidents of his life. At its font his parents had given him his name; at its altar he had plighted his matrimony beneath the little grass mounds in its

The mode of communicating knowledge changes.

Injury to pulpit instruction.

Influence of church services on the people.

Influence of village churches.

yard there awaited the resurrection those who had been untimely taken away. Connected thus with the profoundest and holiest sentiments of humanity, the pulpit was for instruction a sole and sufficient means. Nothing like it had existed in paganism. The irregular, ill-timed, occasional eloquence of the Greek republican orators can not for an instant be set in comparison with such a steady and enduring systematic institution. In a temporal as well as in a spiritual sense, the public authorities appreciated its power. Queen Elizabeth was not the only sovereign who knew how to thunder through a thousand pulpits.

For a length of time, as might have been expected, considering its power and favoring adventitious circumstances, the pulpit maintained itself successfully against the press. The pulpit yields to the press. Nevertheless, its eventual subordination was none the less sure. If there are disadvantages in the method of acquiring knowledge by reading, there are also signal advantages; for, though upon the printed page the silent letters are mute and unsustained by any scenic help, yet often—a wonderful contradiction—they pour forth emphatic eloquence, that can make the heart leap with emotion, or kindle on the cheek the blush of shame. The might of persuasiveness does not always lie in articulate speech. The strong are often the silent. God never speaks.

There is another condition which gives to reading a great advantage over listening. In the affairs of life, how wide is the difference between having a thing done for us and doing it ourselves! Listening and reading. In the latter case, how great is the interest awakened, how much more thorough the examination, how much more perfect the acquaintance. To listen implies merely a passive frame of mind; to read, an active. But the latter is more noble.

From these and other such considerations, it might have been foreseen that the printing-press would at last deprive the pulpit of its supremacy, making it become ineffective, or reducing it to an ancillary aid. Decline of pulpit influence. It must have been clear that the time would arrive when, though adorned by the eloquence of great and good men, the sermon would lose its power for moving popular masses or directing public thought.

Upon temporal as well as ecclesiastical authority, the influence of this great change was also felt. During the Turkish war of 1563 newspapers first made their appearance in Venice. Newspapers; their origin. They were in manuscript. The "Gazette de France" commenced in 1631. There seems to be doubt as to the authenticity of the early English papers reputed to have been published during the excitement of the Spanish Armada, and of which copies remain in the British Museum. It was not until the civil wars that, under the names of *Mercuries*, *Intelligences*, etc., newspapers fairly established themselves in England.

What I have said respecting the influence of the press upon relig-

Decline of power in parliamentary eloquence. ious life applies substantially to civil life also. Oratory has sunk into a secondary position, being every day more and more thoroughly supplanted by journalism. No matter how excellent it may be in its sphere of action, it is essentially limited, and altogether incompetent to the influencing of masses of men in the manner which our modern social system requires. Without a newspaper, what would be the worth of the most eloquent parliamentary attempts? It is that which really makes them instruments of power, and gives to them political force, which takes them out of a little circle of cultivated auditors, and throws them broadcast over nations.

Dawn of the Reformation. Such was the literary condition of Western Europe, such the new power that had been found in the press. These were but initiatory to the great drama now commencing. We have already seen that synchronously with this intellectual there was a moral impulse coming into play. The two were in harmony. At the time now occupying our attention there was a possibility for the moral impulse to act under several different forms. The special mode in which it came into effect was determined by the pecuniary necessities of Italy. It very soon, however, assumed larger proportions, and became what is known to us as the Reformation. The movement against Rome that had been abandoned for a century was now recommenced.

Variation of human thought. The variation of human thought proceeds in a continuous manner, new ideas springing out of old ones either as corrections or developments, but never spontaneously originating. With them as with organic forms, each requires a germ, a seed. The intellectual phase of humanity observed at any moment is therefore an embodiment of many different things. It is connected with the past, is in unison with the present, and contains the embryo of the future.

Human opinions must hence, of absolute necessity, undergo transformation. What has been received by one generation as undoubted, to a subsequent one becomes so conspicuously fallacious as to excite the wonder of those who do not distinctly appreciate the law of psychical advance that it could ever have been received as true. These phases of transformation are not only related in a chronological way, so as to be obvious when we examine the ideas of society at epochs of a few years or of centuries apart—they exist also contemporaneously in different nations or in different social grades of the same nation, according as the class of persons considered has made a greater or less intellectual progress.

Variations in Italian Ideas. Notwithstanding the assertion of Rome, the essential ideas of the Italian system had undergone unavoidable modifications. An illiterate people, upon whom, had accepted as true the asseveration that had come down even from the apostolic times. But the time had come when it could no longer be main-

tained, the divergence no longer concealed. In the new state of things, it was impossible that dogmas in absolute opposition to reason, such as that of transubstantiation, could any longer hold their ground. The scholastic theology and scholastic philosophy, though supported by the universities, had become obsolete. With the revival of pure Latinity and the introduction of Greek, the foundations of a more correct criticism were laid. An age of erudition was unavoidable, in which whatever could not establish its claims against a searching examination must necessarily be overthrown.

We are thus brought to the great movement known as the Reformation. The term is usually applied in reference to the Protestant nations, and therefore is not sufficiently comprehensive, for all Europe was in truth involved. A clear understanding of its origin, its process, its effects, is perhaps best obtained by an examination of the condition of the northern and southern nations, and the issue of the event in each respectively.

Germany had always been sincere, and therefore always devout. Of her disposition she had given many proofs from the time when the Emperor Otho descended into Italy, his expedition having been, as was said, an armed procession of ecclesiastics resolved to abate the scandals of the Church. The Councils of Constance and Basle may be looked upon as an embodiment of the same sentiment. The resolution to limit the papal authority and to put a superior over the pope arose from a profound conviction of the necessity of such a measure. Those councils were precursors of the coming Reformation. In other countries events had long been tending in the same direction: in Sicily and Italy by the acts of Frederick II.; in France through those of Philip the Fair. The educated had been estranged by the Saracens and Jews; the enthusiastic by such works as the Everlasting Gospel; the devout had been shocked by the tale of the Templars and the detected immoralities in Rome; the patriotic had been alienated by the assumptions of the papal court and its incessant intermeddling in political affairs; the inferior, unreflecting orders were in all directions exasperated by its importunate, unceasing exactions of money. In England, for instance, though less advanced intellectually than the southern nations, the commencement of the Reformation is perhaps justly referred as far back as the reign of Edward III., who, under the suggestion of Wiclif, refused to do homage to the pope, but a series of weaker princes succeeding, it was not until Henry VII. that the movement could be continued. In that country the immediately exciting causes were no doubt of a material kind, such as the alleged avarice and impurity of the clergy, the immense amount of money taken from the realm, the intrusion of foreign ecclesiastics. In the South of France and in Italy, where the intellectual condition was much more advanced, the movement was cor-

The Reformation: its history.

The preparatory state of Germany, France, England.

respondingly of a more intellectual kind. To this difference between the north and the south must be referred not only the striking geographical distribution of belief which was soon apparent, but also the speedy and abrupt limitation of the Reformation, restrictedly so called.

In recent ages, under her financial pressure, Rome had asserted that the infinite merits of our Savior, together with the good works of supererogation of many holy men, constituted, as it were, a fund from which might be discharged penalties of sins of every kind, for the dead as well as the living, and therefore available for those who had passed into Purgatory, as well as for us who remain. This fund, committed to the care of St. Peter and his successors, may be disbursed, under the form of indulgences, by sale for money. The theory of supererogation, and nature of indulgences. A traffic in indulgences was thus carried on to a great extent through the medium of the monks, who received a commission upon the profits. Of course, it is plain that the religious conception of such a transaction is liable to adverse criticism—the bartering for money so holy a thing as the merit of our Redeemer. This was, however, only the ostensible explanation, which it was judged necessary to present to sincerely pious communities; behind it there lay the real reason, which was essentially of a political kind. It was absolutely necessary that papal Rome should control a revenue far beyond that arising in a strictly legitimate way. As all the world had been drained of money by the senate and Cæsars for the support of republican or imperial power, so too there was a need of a like supply for the use of the pontiffs. The collection of funds had often given rise to contentions between the ecclesiastical and temporal authorities, and in some of the more sturdy countries had been resolutely resisted. To collect a direct tax is often a troublesome affair; but such is human nature—a man from whom it might be difficult to extort the payment of an impost lawfully laid, will often cheerfully find means to purchase for himself indulgence for sin. In such a semi-barbarian but yet religious population as that with which the Church was dealing, it was quite clear that this manner of presenting things possessed singular advantages, an obvious equivalent being given for the money received. The indulgence implied not only a release from celestial, but also, in many cases, from civil penalties. It was an absolute guarantee from hell.

It is said that the attention of Martin Luther, formerly an Augustinian monk, was first attracted to this subject by the traffic having been conferred on the Dominicans instead of upon his own order at the time when Leo X. was raising funds by this means for building St. Peter's at Rome, A.D. 1517. That was probably only an insinuation of Luther's adversaries, and is very far from being borne out by his subsequent conduct. His first public movement was the putting forth of nine theses against the practice. He posted them on the

door of the cathedral of Wittenberg, and enforced them in his sermons, though at this time he professed obedience to the papal authority. With a rapidity probably unexpected by him, his acts excited public attention so strongly, that, though the pope was at first disposed to regard the whole affair as a mere monkish squabble for gains, it soon became obvious, from the manner in which the commotion was spreading, that something must be done to check it. The pope therefore summoned Luther to Rome to answer for himself; but, through the influence of certain great personages, and receiving a submissive letter from the accused, he, on reconsideration, referred the matter to Cardinal Cajetan, his legate in Germany. The cardinal, on looking into the affair, ordered Luther to retract; and now came into prominence the mental qualities of this great man. Luther, with respectful firmness, refused; but remembering John Huss, and fearing that the imperial safe-conduct which had been given to him would be insufficient for his protection, he secretly returned to Wittenberg, having first, however, solemnly appealed from the pope, ill informed at the time, to the pope when he should have been better instructed. Thereupon he was condemned as a heretic. Undismayed, he continued to defend his opinions; but, finding himself in imminent danger, he fell upon the suggestion which, since the days of Philip the Fair, had been recognized as the true method of dealing with the papacy, and appealed to a general council as the true representative of the Church, and therefore superior to the pope, who is not infallible any more than St. Peter himself had been. To this denial of papal authority he soon added a dissent from the doctrines of purgatory, auricular confession, absolution. It was now that the grand idea which had hitherto silently lain at the bottom of the whole movement emerged into prominence—the right of individual judgment The right of individual judgment asserted.—under the dogma that it is not papal authority which should be the guide of life, but the Bible, and that the Bible is to be interpreted by private judgment. Thus far it had been received that the Bible derives its authenticity and authority from the Church; now it was asserted that the Church derives her authenticity and authority from the Bible. At this moment there was but one course for the Italian court to take with the audacious offender, for this new doctrine of the right of exercising private judgment in matters of faith was dangerous to the last extreme, and not to be tolerated for a moment. Luther was therefore ordered to recant, and to burn his own works, under penalty, if disobedient, of being excommunicated, and delivered over unto Satan. Excommunication of Luther. The bull thus issued directed all secular princes to seize his person and punish his crimes.

But Luther was not to be intimidated; nay, more, he retaliated. He denounced the pope, as Frederick and the Fratricelli had formerly done, as the Man of Sin, the Anti-Christ. He called He resists, and publicly burns the bull,

upon all Christian princes to shake off his tyranny. In the presence of a great concourse of applauding spectators, he committed the volumes of the canon law and the bull of excommunication to the flames. The pope now issued another bull expelling him from the Church. This was in January, 1521. This separation opened to Luther an unrestrained career. He forthwith proceeded to an examination of the Italian system of theology and policy, in which he was joined by many talented men who participated in his views. The Emperor Charles V. found it necessary to use all his influence to check the spreading Reformation. But it was already too late, for Luther had obtained the firm support of many personages of influence, and his doctrines were finding defenders among some of the ablest men in Europe.

An imperial diet was therefore held at Worms, before which Luther, being summoned, appeared. But nothing could induce him to retract his opinions. An edict was published putting him under the ban of the empire; but the Elector of Saxony concealed him in the castle of Wartburg. While he was in this retirement his doctrines were rapidly extending, the Augustinians of Wittenberg not hesitating to change the usages of the Church, abolishing private masses, and giving the cup as well as the bread to the laity.

While Germany was agitated to her centre, a like revolt against Italian supremacy broke out in Switzerland. It too commenced on the question of indulgences, and found a leader in Zuinglius.

Even at this early period the inevitable course of events was beginning to be plainly displayed in sectarian decomposition; for, while the German and Swiss Reformers agreed in their relation toward the papal authority, they differed widely from each other on some important doctrinal points, more especially as to the nature of the Eucharist. The Germans supposed that the body and blood of Christ are actually present in the bread and wine in some mysterious way; the Swiss believed that those substances are only emblems or symbols. Both totally rejected the Italian doctrine of transubstantiation. The old ideas of Berengar were therefore again fermenting among men. An attempt was made, under the auspices of the Landgrave of Hesse, to compose the dissension in a conference at Marburg; but it was found, after a long disputation, that neither party would give up its views, and they therefore separated, as it was said, in Christian charity, but not in brotherhood.

At the first Diet of Spire, held in 1526, it was tried to procure the execution of the sentence passed upon Luther, but the party of the Reformation proved to be too strong for the Catholics. At a second diet, held at the same place two years subsequently, it was resolved that no change should be made in the established religion before the action of a general council, which was recommended by both diets, should

be known. On this occasion the Catholic interest preponderated sufficiently to procure a revocation of the power which had been conceded to the princes of the empire of managing for a time the ecclesiastical matters of their own dominions. Against this action several of the princes and cities *protested*, this being the origin of the designation Protestants subsequently given to the Reformers. At a diet held the following year at Augsburg, a statement, composed by Luther and Melancthon, of the doctrines of the Reformers was presented; it also treated to some extent of the errors and superstitions of the Catholics. This is what is known as the Confession of Augsburg. But the diet not only rejected it, but condemned most of its doctrines. The Protestants, therefore, in an assembly at Smalcalde, contracted a treaty for their common defense, and this may be looked upon as the epoch of organization of the Reformation. This league did not, however, include the Reformers of Switzerland, who could not conscientiously adopt the Confession of Augsburg, which was its essential basis. The Sacramentarians, as they were called, became thus politically divided from the Lutherans. Moreover, in Switzerland the process of decomposition went on, Calvin establishing a new sect, characterized by the manner in which it insisted on the Augustinian doctrines of predestination and election, by the abolition of all festivals, and the discontinuance of Church ceremonies. At a later period the followers of Zuingle and Calvin coalesced.

The political combinations which had thus occurred as Protestantism rapidly acquired temporal power gave rise, as might have been anticipated, to wars. The peace of Augsburg, 1555, furnished the Reformers the substantial advantages they sought—freedom from Italian ecclesiastical authority, the right of all Germans to judge for themselves in matters of religion, equality in civil privileges for them and the Catholics. A second time, sixty-four years subsequently, war broke out—the Thirty Years' War—and finally the dispute was composed by the treaty of Westphalia. This may be regarded as the culmination of the Reformation. Peace was made in spite of all the intrigues and opposition of Rome.

The doctrines of the Reformation were adopted with singular avidity throughout the north of Europe, and established themselves for a time in France and in Italy. Even as early as 1558 a report of the Venetian ambassador estimates the Catholics of the German empire at only one tenth of the population. For twenty years not a student of the University of Vienna had become a priest.

Such was the Reformation among the German nations. It is not possible, however, to comprehend correctly that great movement without understanding the course of events in Italy, for that peninsula was involved, though in a very different way. In its intel-

lectual condition it was far in advance of the rest of Europe, as is proved by such facts as those to which we have alluded respecting the printing of books. Between it and the nations of which we have been speaking there was also a wide difference in material interests. What was extorted from them was enjoyed by it. The mental and material condition of Italy soon set a limit to the progress of the Reformation.

The Italians had long looked upon the transalpine nations with contempt. On the principle that the intellectually strong may lawfully prey on the intellectually weak, they had systematically drained them of their wealth. As we exchange with savages beads, and looking-glasses, and nails, for gold, they had driven a profitable barter with the valiant but illiterate barbarians, exchanging possessions in heaven for the wealth of the earth, and selling for money immunities or indulgences for sin. But in another respect they had looked upon them with dread—they had felt the edge of the French and German sword. The educated classes, though seeking the widest liberty of thought for themselves, were not disposed to more than a very select propagandism of opinions, which plainly could only be detrimental to the pecuniary interests of their country. Their faith had long ago ceased to be that of conviction; it had become a mere outward patriotic acquiescence. Even those who were willing enough to indulge themselves in the utmost latitude of personal free-thinking never made an objection when some indiscreet zealot of their own kind was compelled by ecclesiastical pressure to fly beyond the Alps. No part of Europe was so full of irreligion as Italy. It amounted to a philosophical infidelity among the higher classes; to Arianism among the middle and less instructed; to an utter carelessness, not even giving itself the trouble of disbelief, among the low. The universities and learned academies were hot-beds of heresy; thus the University of Padua was accused of having been for long a focus of atheism, and again and again learned academies, as those of Modena and Venice, had been suppressed for heresy. The device of the Academy of the Lyncei indicated only too plainly the spirit of these institutions; it was a lynx, with its eyes turned upward to heaven, tearing the triple-headed Cerberus with its claws. Nor was this alarming condition restricted to Italy; France had long participated in it. From the University of Paris, that watch-tower of the Church, the alarm had often been sounded; now it was against men, now against books. Once, under its suggestions, the reading of the physics and metaphysics of Aristotle had been prohibited, and works of philosophy interdicted until they should have been corrected by the theologians of the Church. The physical heresies of Copernicus and Galileo, the pantheism of Cæsalpinus, had friendly counterparts in the heresies of the monks. When the head of the Church, Leo X, at the inception of the Reformation, would not escape obloquy, and stories were

Position of the
Italians.

State of their
universities.

State of the
learned acad-
emies.

circulated touching his elevation to the pontificate at once prejudicial to his morals and to his belief.

In such an ominous condition, the necessity of carrying out the policy to which Italy had so long been committed perpetually forced the papal government to acts against which the instructed judgment of its own officials revolted. False position of the papacy. It was a continual struggle between their duty and their disposition. Why should they have thought it expedient to suppress the Koran when it was printed in Venice, 1530? why, when Paul IV., 1559, promulgated the Index Expurgatorius of prohibited books, was it found necessary that not less than forty-eight editions of the Bible should be included in it, sixty-one printers put under the ban, and all their publications forbidden, at first the interdict being against all prohibited books, and, on this being found insufficient, even those that had not been permitted being prohibited? Why was it that Galileo was dealt with so considerately and yet so malignantly? It was plain that toleration, either of men or books, was altogether irreconcilable with the principles of the Holy See, and that under its stern exigencies the former must be disposed of, and the latter suppressed or burnt, no matter what personal inclinations or favoring sentiments might be in the way. If any faltering took place in the carrying out of this determination, the control of Rome over the human mind would be put into the most imminent jeopardy.

So stood affairs in Italy at the beginning and during the active period of the Reformation, the ancient system inexorably pressing upon the leading men, and impelling them to acts against which their better judgment revolted. Check of the Reformation in Italy. They were bound down to the interests of their country, those interests being interwoven with conditions which they could no longer intellectually accept. For men of this class the German and Swiss reformations did not go far enough. They affirmed that things were left just as inconsistent with reason, just as indefensible as before. Doubtless they considered that the paring away of the worship of saints, of absolution for money, penances, indulgences, freedom from papal taxation, the repudiation of intrusive foreign ecclesiastics, was all to the detriment of the pecuniary interests of Italy. They affirmed that the doctrines put forth by the Reformers made good their ground, not through the force of reason, but through appeals to the ignorant, and even to women; not through an improved and sounder criticism, but, as it was declared, through the inward light of the Spirit; that nothing had been done to alleviate the ancient intolerant dogmatism, the forcible suppression of freedom of thought. Leo X., it is well known, at first altogether mistook the nature of the Reformation. Leo X.; his character. He was a man of refined tastes and pleasure, delighting in sumptuous feasts, and too often scandalizing the devout by his indecent conversation and licentious conduct. He gloried

in being the patron of the learned, devoting all his attention to the progress of literature and the fine arts, a connoisseur in antiques. The amenities of the life of an accomplished gentleman were not to be disturbed. He little dreamt that in the coarse German monk there was an antagonist worthy of the papacy. The gay Italians looked upon Luther with ineffable contempt, as introducing ideas even more absurd than those he was trying to displace, and, what was perhaps a still greater offense, upholding his bad doctrines in worse Latin. They affected to believe that they discerned a taint of insanity in the Reformer's account of his conflicts with the Devil, yet were willing to concede that there was a method in his madness, since he was bent on having a wife. In their opinion, the result of the German movement must be exceedingly detrimental to learning, and necessarily lead to the production of very vulgar results, exciting among the common people a revolutionary and destructive spirit. Nor was this personal distaste for Luther altogether undeserved. The caricatures which that great man permitted himself to put forth were too indelicate to be described to a modern reader. They would be worthy of our disgust and indignation did we not find some palliation in the coarseness of the communities and times in which he lived. Leo awoke to his blunder when it was too late, and found that he had been superciliously sneering at what he should have combated with all his might.

It is now more than three centuries since the Reformation commenced, and we are able, with some degree of accuracy, to ascertain its influence. Founded as it was on the right of private interpretation of the Scriptures, it introduced a better rule of life, and made a great advance toward intellectual liberty. It compelled men to be more moral, and permitted them to be more learned. For the traditions of superstition it substituted the dictates of common sense; it put an end to the disgraceful miracles that for so many ages had been the scandal of Europe. The assertion of the Italians that it was a great injury to letters is untrue. Though not to be regarded in any respect as a learned man, Luther approved of the study of Greek and Hebrew, recognized by all parties to be dangerous to the Latin system. And even if the accusation is admitted that he approved of their cultivation, not from any love to them, but from hatred to it, the world was equally a gainer. Toward the close of his life it seemed as if there was no other prospect for papal power than total ruin; yet at this day, out of three hundred millions of Christians, more than half owe allegiance to Rome. Almost as if by enchantment the Reformation suddenly ceased to advance. Rome was not only able to check its spread, but even to gain back a portion of what she had lost. The cause of this, which may seem at first an extraordinary result, is not to be attributed to any supernatural influence, as we have supposed. When natural causes suffice, it is not supernatural.

Check of the
Reformation
in Europe.

Its causes were
not supernatural.

Though there might be sovereigns who, like Henry VIII., had personal reasons for discontent with the Italian court; though there were some who sought to usurp the power and prerogatives of the popes; though there might be nobles who, as the Prince of Wales' tutor wrote to Sir W. Paget, were "importunate wolves, as are able to devour chantries, cathedral churches, universities, and a thousand times as much;" some who desired the plunder of establishments endowed by the piety of ages, and who therefore lent all their influence in behalf of this great revolution; there was among such and above such that small but all-important body of men who see human affairs from Influence of statesmen and philosophers. the most general point of view. To these, whatever might be the nation to which they happened to belong, it was perfectly evident that the decomposition of faith which had set in, if permitted to go on unchecked, could not possibly end in any other way than in producing an anarchy of sects. In their opinion the German Reformation did not go far enough. It still practically left untouched the dependency of the Church upon the State. In the southern nations of the Continent it had merely irritated the great European ulcer, whereas what was required was the complete amputation of the rotten mass. In their judgment it was better to leave things as they were until a thorough eradication could be accomplished, and this, at the time, was obviously impossible. Not understanding, perhaps, how much human affairs are developed according to law, and how little by the volition of individuals, they liberally conceded that Catholicism had been the civilizing agency of Europe, and had become inwoven with the social fabric for good or for evil. It could not now be withdrawn without pulling the whole texture to pieces. Moreover, the curtain of papal authority, which at one time enveloped all Europe in its ample folds, had, in the course of these late events, been contracted and stretched across the Continent, dividing the northern and southern nations from each other. The people of the south saw on its embroidered surface nothing but forms of usefulness and beauty, they on the north a confusion of meaningless threads. But the few who considered it as a whole, and understood the relations of both sides, knew well enough that the one is the necessary incident of the other, and that it is quite as useless to seek for explanations as to justify appearances. To them it was perfectly clear that the tranquillity and happiness of Christendom were best subserved by giving no encouragement to opinions which had already occasioned so much trouble, and which seemed to contain in their very constitution principles of social disorganization.

A second reason for the sudden loss of expansive force in the Reformation is found in its own intrinsic nature. The principle of decomposition which it represented, and with which it was Influence of the nature of the Reformation. inextricably entangled, necessarily implied oppugnancy. For a short

season the attention of Protestantism was altogether directed to the papal authority from which it had so recently separated itself; but, with its growing strength and ascertained independence, that object ceased to occupy it, becoming, as it were, more distant and more obscure. Upon the subordinate divisions which were springing from it, or which were of collateral descent from the original Catholic stock, the whole view of each denomination was concentrated. The bitterness once directed against the papacy lost none of its intensity when pointed at rivals or enemies nearer home. Nor was it alone dissensions among the greater sects, oppositions such as those between the Church of England and the Church of Scotland, whose discords were founded on points admitted by all to be great and essential; the same principle ran down through all the modes of sectarian combination as they emerged into life, producing among those of equal power struggles, and in the strong toward the weak persecution. Very soon the process of decomposition had advanced to such an extent that minor sects came into existence on very unessential points. Yet even among these little bodies there was just as much acrimony, just as much hatred as among the great. These differences were carried into the affairs of civil life, each sect forming a society within itself, and abstaining, as far as might be, from associations with its rivals. Of such a state of things the necessary result was weakness, and, had there been no other reason, this in itself would have been quite sufficient in the end to deprive Protestantism of its aggressive power. An army divided against itself is in no condition to make warfare against a watchful and vigorous enemy.

But this was not all. It was in the nature of Protestantism from its outset that it was not constructive. Unlike its great antagonist, it contained no fundamental principle that could combine distant communities and foreign countries together. It originated in dissent, and was embodied by separation. It could not possess a concentrated power, nor recognize one apostolic man who might compress its disputes, harmonize its powers, wield it as a mass. For the attainment of his aims the Protestant had only wishes, the Catholic had a will. The Church of England, of Scotland, or of any other Protestant nation, undoubtedly did discharge its duty excellently well for the community in which it was placed, but, at the most, it was only a purely local institution, altogether insignificant in comparison with that great old Church, hoary and venerable with age, which had seen every government and every institution in Europe come into existence, many of them at its bidding, which had extirpated paganism from the Roman empire, compelled the Cæsars to obey its mandates, precipitated the whole white race upon the Holy Land; that great old Church, once the more than imperial reign of Christendom, and of which the most respectable nation was only a fragment of a fragment.

Effect of sectarian disputes.

Want of concentrated power.

Very different was it with Catholicism. It possessed an organization which concentrated in the hand of one man irresistible power, and included all the southern countries of Europe not Mohammedan. It could enforce its policy by the armies and fleets of obedient kings. It is not surprising, when this state of things is considered, that the spread of the Reformation was limited to its first fervor—that the men who saw its origin saw also its culmination. It is not to be wondered at that, with the political weakening arising from a tendency to subdivision and disintegration on one side, and the preparing of a complete and effective organization against the danger that was threatening on the other, the issue should have turned out as it did.

Condition of
Catholicism.

Rome, awaking at last to her danger, met the Reformation with four weapons—a counter-reformation, an increased vigor in the Inquisition, the institution of the Jesuits, and a greater embellishment of worship. The disposition of the northern nations was to a simplification of worship, that of the south to adorn it with whatever could captivate the senses. Ranke asserts that the composition of the mass of Marcellus by Palestrina, 1560, had a wonderful effect in the revival of religion; there can be no doubt that it constituted an epoch in devotion. But of all these, the first and best was a moral change which she instantly imposed upon herself.

The means of re-
sistance resorted
to by Rome.

A counter-re-
formation.

Henceforth it was her intention that in the chair of St. Peter should never again be seen atheists, poisoners, thieves, murderers, blasphemers, adulterers, but men, who, if they were sometimes found, as must be the case, considering the infirmities of humanity, incompetent to deal with the great trials which often befell them, were yet of such personal purity, holiness of life, and uprightness of intention as to command profound respect. Those scandals that hitherto had every where disgraced her began to disappear, a true reformation, but not a schism, occurring through all ecclesiastical grades. Had Protestantism produced no other result than this, it would have been an unspeakable blessing to the world.

By another very different means the Italian power sought to insure its domination—by an increased activity of the Inquisition. It is difficult to understand how men of capacity could have justified this iniquitous institution. Certainly it could not have been upon any principles of Christian morality, nor even upon those of high statesmanship. For the Inquisition to accomplish its purpose, it must needs be as all-seeing as Providence, as inexorable as the grave; not inflicting punishments which the sufferer could remember, but remorselessly killing outright; not troubling itself to ascertain the merits of a case and giving the accused the benefits of a doubt, but regarding suspicion and certainty as the same thing. If worked with the unscrupulous, impassive resolution of Machiavellianism, this great engine for the coercion of the human mind could be made to accomplish its purpose.

The Inquisition
brought into ac-
tivity.

It thoroughly extinguished Protestantism in Spain and Italy, and in those countries maintained a barrier against the progressive reason of man.

But the most effective weapon to which the papacy resorted was the institution of the order of the Jesuits. It was established by a bull of Paul III., 1540, the rules being that the general chosen for life should be obeyed as God; that they should vow poverty, chastity, obedience, and go wherever they were commanded; their obedience was to the pope, not to the Church—a most politic distinction, for thereby an unmistakable responsibility was secured. They had no regular hours of prayer; their duties were preaching, the direction of consciences, education. By the Jesuits Rome penetrated into the remotest corners of the earth, established links of communication with her children who remained true to her in the heart of Protestant countries, and, with a far-seeing policy for the future, silently engrossed the education of the young. At the confessional she extorted from women the hidden secrets of their lives and those of their families, took the lead in devotion wherever there were pious men, and was equally foremost in the world of fashion and dissipation. There was no disguise under which the Jesuit might not be found—a bare-foot beggar, clothed in rags; a learned professor, lecturing gratuitously to scientific audiences; a man of the world, living in profusion and princely extravagance; there have been Jesuits the wearers of crowns. There were no places into which they did not find their way: a visitor to one of the loyal old families of England could never be sure but that there was a Jesuit hidden in the garret or secreted behind the wainscot of the bedroom. They were the advisers of the leading men of the age, sat in the cabinets of kings, and were their confessors. They boasted that they were the link between religious opinion and literature. With implicit and unquestioning obedience to his superior, like a good soldier, it was the paramount duty of the Jesuit to obey his orders, whatever those orders might be. It was for him to go, at the summons of a moment, with his life in his hand, to the very centre of pagan or of reformed and revolted countries, where his presence was death by law, and execute the mission intrusted to him. If he succeeded, it was well; if he should fall, it was also well. To him all things were proper for the sake of the Church. It was his business to consider how the affair he had in hand was to be most surely accomplished—to resort to justifiable means if they should appear sufficient, if not, to unjustifiable; to the spiritual weapon, but also to be prepared with the carnal; to sacrifice candor if the occasion should require, if necessary even truth, remembering that the end justifies the means, if that end is the good of the Church.

While some religious orders were founded on retirement, and aimed

at personal improvement by solitude, the Jesuits were instructed to mix in the affairs of men, and gather experience in the ways of worldly wisdom. And since it is the infirmity of humanity, whatever may be the vigor of its first intentions, too often to weary in well-doing, provision was made to re-enforce the zeal of those becoming lukewarm, to admonish the delinquent, by making each a spy on all the others, under oath to reveal every thing to his superior. In that manner a control was exercised over the brotherhood in all parts of the world. In Europe they had, in a very short time, stealthily but largely engrossed public education; had mixed themselves up with every public affair; were at the bottom of every intrigue, making their power felt through the control they exerted over sovereigns, ministers of state, and great court ladies, influencing the last through the spiritual means of the confessional, or by the more natural but equally effectual entanglements of requited love. Already they had recognized the agency of commerce in promoting and diffusing religious belief, and hence simultaneously became great missionaries and great merchants. With the Indies, East and West, they carried forward extensive commercial undertakings, and had depôts in various parts of Europe. In these operations they were necessarily absolved from their vows of poverty and became immensely rich. In South America they obtained a footing in Paraguay, and commenced their noble attempt at the civilization of the Indians, bringing them into communities, teaching them social usages, agricultural arts, and the benefits arising to themselves and the community from labor. They gave them a military organization, subdivided, according to the European system, into the customary arms—infantry, cavalry, artillery; they supplied them with munitions of war. It was their hope that from this basis they should be able to spread the rule of the Church over America, as had been done in preceding ages over Europe.

An intolerable apprehension of their invisible presence and unscrupulous agency made all Europe put them down at last. The amenities of exquisite courteousness, the artifices of infinite dissimulation, can not forever deceive. Men found, by bitter experience, that under the silken glove there was an iron hand. From their general in Rome, who was absolute commander of their persons and unchallengeable administrator of their prodigious wealth, down to the humblest missionary who was wearing away his life among the Andes, or on the banks of the Hoang-ho, or in the solitary prairies of Missouri, or under the blazing sun of Abyssinia; whether he was confessing the butterfly ladies of Paris, whispering devilish suggestions into the ear of the King of Spain, consoling the dying peasant in an Irish cabin, arguing with mandarins in the palace of the Emperor of China, stealing away the hearts of the rising generation in the lower schools and academies, extorting the admiration of learned societies by the profundity of his

Causes of their suppression.

philosophy and the brilliancy of his scientific discoveries; whether he was to be seen in the exchanges and marts of the great capitals, supervising commercial operations on a scale which up to that time had been attempted by none but the Jews; whether he was held in an English jail as a suspected vagabond, or sitting on the throne of France; whether he appeared as a great landed proprietor, the owner of countless leagues in the remote parts of India or South America; whether he was mixing with crowds in the streets of London, and insinuating in Protestant ears the rights of subjects to oppose and even depose their monarchs, or in the villages of Castile and Leon, preaching before Catholic peasants the paramount duty of a good Christian implicitly to obey the mandates of his king; wherever the Jesuit was, or whatever he was doing, men universally felt that the thing he had in hand was only auxiliary to some higher, some hidden design. The stealth, and silence, and power became at last so intolerable that they were banished from France, Spain, Portugal, and other Catholic countries. But such was their vitality that, though the order was abolished by a papal bull in 1773, they have been again restored.

Though it is sometimes said that Rome in this manner, by her admirable combinations and irresistible movement, succeeded at last in checking the Reformation, a full consideration of the state of affairs would lead us to receive that assertion with very considerable restriction. She came out of the conflict much less powerful than she had entered it. If we attribute to her policy all that it can justly claim, we must also attribute to causes over which she had no kind of control their rightful influence. The Reformation had been, to no small extent, due to the rise of criticism, which still continued its development, and was still fruitful of results. Latin had fallen from its high estate; the modern languages were in all directions expanding and improving; the printing-press was not only giving Greek learning to the world, but countless translations and commentaries. The doctrine successfully established by Luther and his colleagues, the right of private interpretation and judgment, was the practical carrying out of the organic law of criticism to the highest affairs with which man can be concerned—affairs of religion. The Reformation itself, philosophically considered, really meant the casting off of authority, the installation of individual inquiry and personal opinion. If criticism, thus standing upon the basis of the Holy Scriptures, had not hesitated to apply itself to an examination of public faith, and, as the consequence thereof, had laid down new rules for morality and the guidance of life, it was not to be expected that it would hesitate to deal with minor things—that it would spare the philosophy, the policy, the literature of antiquity. And so, indeed, it went on, comparing classical authors with classical authors, the fathers with the fathers, often the same writer with

Effects of change
of opinion among
the learned.

Effects of criticism
on religion
and literature.

himself. Contradictions were pointed out, errors exposed, weakness detected, and new views offered of almost every thing within the range of literature.

From this burning ordeal one book alone came out unscathed. It was the Bible. It spontaneously vindicated for itself what Wick-^{The Bible} lif in the former times, and Luther more lately, had claimed for it. And not only did it hold its ground, but it truly became incalculably more powerful than ever it had been before. The press multiplied it in every language without end, until there was scarcely a cottage in reformed Europe that did not possess a copy.

But if criticism was thus the stimulating principle that had given life to the Reformation, it had no little to do with its pause; and this is the influence over which Rome had no kind of control, and to which I have made allusion. The phases through which the Reformation passed were dependent on the coincident advances of learning. First it relied on the Scriptures, which were to the last its surest support; then it included the fathers. But, from a more intimate study of the ^{Decline of the value of patristic learning.} latter, many erudite Protestants were gradually brought back to the ancient fold. Among such may be mentioned Erasmus, who by degrees became alienated from the Reformers, and subsequently Grotius, the publication of whose treatise, "*De jure belli et pacis*," 1625, really constituted an epoch in the political system of Europe. This great man had gradually become averse to the Reformation, believing that, all things considered, it had done more harm than good; he had concluded that it was better to throw differences into oblivion for the sake of peace, and to enforce silence on one's own opinions, rather than to expect that the Church should be compelled to accommodate herself to them. If such men as Erasmus, Casaubon, and Grotius had been brought to this dilemma by their profound philosophical meditations, their conclusion was confirmed among the less reflecting by the unhappy intolerance of the new as well as the old Church. Men asked what was the difference between the vindictiveness with which ^{Moral effects of persecutions.} Rome dealt with Antonio de Dominis, at once an ecclesiastic and a natural philosopher, who, having gone over to Protestantism and then seceded, imprudently visited Rome, was there arrested, and, dying, his body was dug up and burnt, and the rigor of Calvin, who seized Servetus, the author of the "*Christianismi Restitutio*," and in part the discoverer of the circulation of the blood, when he happened to pass through Geneva, and committed him to the flames.

Criticism had thus, in its earlier stage, produced well-marked results. As it developed it lost none of its power. It had enthroned ^{End of patristicism.} patristic theology; now it wrenched from its hand the sceptre. In the works of Daillé it showed that the fathers are of no kind of use—they are too contradictory of one another; even Jeremy Tay-

lor speaks of their authority and reputation as clean gone forever. In a few years they had sunk into desuetude, a neglect shared by many classical authors, whose opinions were now only quoted with a respectful smile. The admiration for antiquity was diminishing under the effect of searching examination. Books were beginning to appear, turning the old historians into ridicule for their credulity. The death of Servetus was not without advantage to the world. There was not a pious or thoughtful man in all reformed Europe who was not shocked when the circumstances under which that unhappy physician had been brought to the stake at Geneva by John Calvin were made known. For two hours he was roasted in the flames of a slow fire, begging for the love of God that they would put on more wood, or do something to end his torture. Men asked, with amazement and indignation, if the atrocities of the Inquisition were again to be revived. On all sides they began to inquire how far it is lawful to inflict the punishment of death for difference of opinion. It opened their eyes to the fact that, after all they had done, the state of civilization in which they were living was still characterized by its intolerance. In 1546 the Venetian ambassador at the court of Charles V. reported to his government that in Holland and Friesland more than thirty thousand persons had suffered death at the hands of justice for Anabaptist errors. From such an unpromising state of things toleration could only emerge with difficulty. It was the offspring, not of a philosophical charity, but of the checked animosities of ever-multiplying sects, and their detected impossibility of coercing one another.

The history of the Reformation does not close, where many European authors have imagined, in a balanced and final distribution of the north and south between the Protestant and the Catholic. The predestined issue of sectarian differences and dissensions is individual liberty of thought. So long as there was one vast overshadowing, intolerant corporation, every man must bring his understanding to its measure, and think only as it instructed him to do. As soon as dissenting confessions gathered sufficient military power to maintain their right of existence—as soon as from them, in turn, incessant offshoots were put forth, toleration became not only possible, but inevitable, and that is perhaps as far as the movement has at this time advanced in Europe. But Macaulay and others who have treated of the Reformation have taken too limited a view of it, supposing that this was its point of arrest. It made another enormous stride when, at the American Revolution, the State and the Church were solemnly and openly dis severed from one another. Now might the vaticinations of the prophets of evil expect credit; a great people had irrevocably broken off theology, and it might surely have been expected that its tests, and instincts, and passions of

The burning
of Servetus
by Calvin.

The Reforma-
tion continued
in America.

Separation
of Church
and State.

men would have dragged every thing into the abyss of anarchy. Yet what do we, who are living nearly a century after that time, find the event to be? Sectarian decomposition, passing forward to its last extreme, is the process by which individual mental liberty is engendered and maintained. A grand and imposing religious unity implies tyranny to the individual; the increasing emergence of sects gives him increasing latitude of thought—with their utmost multiplication he gains his utmost liberty. In this respect, unity and liberty are in opposition; as the one diminishes, the other increases. The Reformation broke down unity; it gave liberty to masses of men grouped together in sufficient numbers to insure their position; it is now invisibly, ^{Emergence of liberty of thought.} but irresistibly making steps, never to be stayed until there is an absolute mental emancipation for man.

Great revolutions are not often accomplished without much suffering and many crimes. It might have been supposed before the event, perhaps it is supposed by many who are not privileged to live among the last results, that this decomposition of religious faith must be to the detriment of personal and practical piety. Yet America, in which, ^{The American clergy.} of all countries, the Reformation at the present moment has farthest advanced, should offer to thoughtful men much encouragement. Its cities are filled with churches built by voluntary gifts; its clergy is voluntarily sustained, and is, in all directions, engaged in enterprises of piety, education, mercy. What a difference between its private life and that of ecclesiastics before the Reformation! Not, as in the old times, does the layman look upon them as the cormorants and curse of society; they are his faithful advisers, his honored friends, under whose suggestion and supervision are instituted educational establishments, colleges, hospitals, whatever can be of benefit to men in this life, or secure for them happiness in the life to come.

CHAPTER XXI.

DIGRESSION ON THE CONDITION OF ENGLAND AT THE END OF THE AGE OF FAITH.

RESULTS PRODUCED BY THE AGE OF FAITH.

Condition of England at the Suppression of the Monasteries.

Condition of England at the Close of the seventeenth Century.—Locomotion, Literature, Libraries.—Social and private Life of the Laity and Clergy.—Brutality in the Administration of Law.—Profligacy of Literature.—The Theatre, its three Phases.—Miracle, Moral, and Real Plays.

Estimate of the Advance made in the Age of Faith.—Comparison with that already made in the Age of Reason.

ARRIVED at the commencement of the Age of Reason, we might profitably examine the social condition of those countries destined to become conspicuous in the new order of things. I have not space to present such an examination as extensively as it deserves, and must limit my remarks to that nation which, of all others, is most interesting to the American reader—that England, which we picture to ourselves as foremost in civilization, her universities dating back for many centuries; her charters and laws, on which individual, and therefore social liberty rests, spoken of as the ancient privileges of the realm; her people a clear-headed race, lovers and stout defenders of freedom. During by far the greater part of the past period she had been Catholic, but she had also been reformed—ever, as she will always be, religious. A correct estimate of her national and individual life will point out to us all that had been done in the Age of Faith. From her condition we may gather what is the progress made by man when guided by such theological ideas as those which had been her rule of life.

The following paragraphs convey an instructive lesson. They dissipate some romantic errors; they are a verdict on a political system from its practical results. What a contrast with the prodigious advancement within a few years when the Age of Reason had set in! How strikingly are we reminded of the inconsequential, the fruitless actions of youth, and the deliberate, the durable undertakings of manhood!

For many of the facts I have now to mention the reader will find authorities in the works of Lord Macaulay and Mr. Froude on English history. My own reading in other directions satisfies me that the picture here offered represents the actual condition of things.

At the time of the suppression of the monasteries in England the in-

fluences which had been in operation for so many centuries had come to an end. Had they endured for a thousand years longer they could have accomplished nothing more. The condition of human life shows what their uses and what their failures had been. There were forests extending over great districts; fens forty or fifty miles in length, reeking with miasm and fever, though round the walls of the abbeys there might be beautiful gardens, green lawns, shady walks, and many murmuring streams. In trackless woods where men should have been, herds of deer were straying; the sandy hills were alive with conies, the downs with flocks of bustard. The peasant's cabin was made of reeds or sticks plastered over with mud. His fire was chimneyless—often it was made of peat. In the objects and manner of his existence he was but a step above the industrious beaver who was building his dam in the adjacent stream. There were highwaymen on the roads, pirates on the rivers, vermin in abundance in the clothing and beds. The common food was peas, vetches, fern roots, and even the bark of trees. There was no commerce to put off famine. Man was altogether at the mercy of the seasons. The population, sparse as it was, was perpetually thinned by pestilence and want. Nor was the state of the townsman better than that of the rustic; his bed was a bag of straw, with a fair round log for his pillow. If he was in easy circumstances, his clothing was of leather; if poor, a wisp of straw wrapped round his limbs kept off the cold. It was a melancholy social condition when nothing intervened between reed cabins in the fen, the miserable wigwams of villages, and the conspicuous walls of the castle and monastery. Well might they who lived in those times bewail the lot of the ague-stricken peasant, and point, not without indignation, to the troops of pilgrims, mendicants, pardoners, and ecclesiastics of every grade who hung round the Church, to the nightly wassail and rioting drunkenness in the castle-hall, secure in its moats, its battlements, and its warders. The local pivots round which society revolved were the red-handed baron, familiar with scenes of outrage and deeds of blood, and the abbot, indulging in the extreme of luxury, magnificent in dress, exulting in his ambling palfrey, his hawk, his hounds. Rural life had but little improved since the time of Cæsar; in its physical aspect it was altogether neglected. As to the mechanic, how was it possible that he could exist where there were no windows made of glass, no, not of oiled paper, no workshop warmed by a fire. For the poor there was no physician, for the dying the monk and his crucifix. The aim was to smooth the sufferer's passage to the next world, not to save him for this. Sanitary provisions there were none except the paternoster and the ave. In the cities the pestilence walked unstayed, its triumphs numbered by the sounds of the death-crier in the streets or the knell for the soul that was passing away.

Condition at the suppression of the monasteries.

Our estimate of the influence of the system under which men were thus living as a regulator of their passions may at this point derive much exactness from incidents such as those offered by the history of syphilis and the usages of war. For this purpose we may for a moment glance at the Continent.

The attention of all Europe was suddenly arrested by a disease which broke out soon after the discovery of America. It raged with particular violence in the French army commanded by Charles VIII. at the siege of Naples, A.D. 1495, and spread almost like an epidemic. It was syphilis. Though there have been medical authors who supposed that it was only an exacerbation of a malady known from antiquity, that opinion can not be maintained after the learned researches of Astruc. That it was something recognized at the time as altogether new seems to be demonstrated by the accusations of different nations against each other of having given origin to it. Very soon, however, the truth appeared. It had been brought by the sailors of Columbus from the West Indies. Its true character, and the conditions of its propagation, were fully established by Fernel.

Now, giving full weight to the fact that the virulence of a disease may be greatest at its first invasion, but remembering that there is nothing in the history of syphilis that would lead us to suppose it ever was, or indeed could be infectious, but only contagious, or communicated by direct contact from person to person; remembering also the special circumstances under which, in this disease, that contagion is imparted, the rapidity of its spread all over Europe is a significant illustration of the fearful immorality of the times. If contemporary authors are to be trusted, there was not a class, married or unmarried, clergy or laity, from the holy father, Leo X., to the beggar by the wayside, free from it. It swept over Europe, not as Asiatic cholera did, running along the great lines of trade, and leaving extensive tracts untouched, settling upon and devastating great cities here and there, while others had an immunity. The march of syphilis was equable, unbroken, universal, making good its ground from its point of appearance in the southwest, steadily and swiftly taking possession of the entire Continent, and offering an open manifestation and measure of the secret wickedness of society.

If thus the sins man practices in privacy became suddenly and accidentally exposed, that exposure showing how weak is the control that any system can exercise over human passions, we are brought to the same melancholy conclusion when we turn to those crimes that may be perpetrated in the face of day. The usages of war in the civil contests of the fifteenth century, or in the religious conflicts of the sixteenth and seventeenth, are perfectly appalling; the annals of those evil days of wanton and objectless barbarities,

Moral state indicated by the spread of syphilis,

and by the usages of war.

refusal of quarter, murder in cold blood, killing of peasants. Invading armies burnt and destroyed every thing in their way; the taking of plunder and ransom of prisoners were recognized sources of wealth. Prosperous countries were made "a sea of fire;" the horrible atrocities of the Spaniards in America were rivaled by those practiced in Europe; deliberate directions were given to make whole tracts "a desert." Attempts had been made to introduce some amelioration into warfare again and again, either by forbidding hostilities at certain times, as was the object of the "truces of God," repeatedly enforced by ecclesiastical authority, or by establishing between the combatants themselves those courtesies which are at once the chief grace and glory of chivalry; but, to judge by the result as offered, even so late as the eighteenth century, those attempts must be regarded as having proved altogether abortive.

England, at the close of the Age of Faith, had for long been a chief pecuniary tributary to Italy, the source from which large revenues had been drawn, the fruitful field in which herds of Italian ecclesiastics had been pastured. A wonderful change was impending. At the beginning of the sixteenth century the island was far more backward intellectually and politically than is commonly supposed. Its population hardly reached five millions, and was stationary at that point, not so much because of the effects of civil and foreign war as merely through the operation of ordinary economical causes. There was no reason to call more men into existence. It was regarded as good statesmanship to maintain the population at a constant standard. The municipal policy corresponded to the national; it was not so much advanced as that contemporaneously existing in Peru. Swarms of idle ecclesiastics had set such a pernicious example that the indisposition among common people to work had become quite a formidable difficulty. In every village there were stocks for the punishment of "valiant beggars," as they were termed. By the act of 1531, vagrants "whole and mighty in body" caught begging for the first time might be whipped at the cart-tail; the second time their ears were to be slit; by the act of 1536, if caught the third time, they were to be put to death. In all directions large towns were falling into decay, a misfortune popularly attributed to the laziness of the lower orders, but in reality due to causes of a very different kind. Hitherto land had been the representative of authority and the source of power. Society had been organized upon that imperfect basis; a descending scale of landed proprietors had been established, and in that system every man had a place assigned to him, just as in Peru, though less perfectly. It was a system of organized labor, the possession of land being a trust, not a property. But now commerce was beginning to disturb the foundations on which all these arrangements had been sustained, and to compel a new distribution of population; trading compa-

Backward condition of England.

Apparent decline of its prosperity.

nies were being established; men were unsettled by the rumors or realities of immense fortunes rapidly gained in foreign adventure. Maritime enterprise was thus not only dislocating society, but even destroying its spirit, substituting self-interest for loyalty. A nation so illiterate that many of its peers in Parliament could neither read nor write, was hardly able to trace the troubles befalling it to their proper source;

It is imputed to the clergy. with one voice it imputed them to the bad example and shortcomings of the clergy. Long before Henry VIII., England was ready for the suppression of the monasteries. She regarded them as the very hot-beds of her evils. There were incessant complaints against the clergy for their scandalous lusts, for personal impurities such as in modern times we do not allude to, for their holding of livings in plurality, for their extortion of exorbitant profits, and neglect in the discharge of their duty. In the public opinion, to so great

Causes of irritation of the laity against the clergy.

an extent had these immoralities gone that it was openly asserted that there were one hundred thousand women in England made dissolute by the clergy. It was well known that brothels were kept in London for their use. It was affirmed that the confessional was shamefully abused, and, through it, advantage taken of females; that the vilest crime in an ecclesiastic might be commuted for money, six shillings and eightpence being sufficient in the case of mortal sin. Besides these general causes of complaint, there were some which, though of a minor, were not of a less irritating kind; such, for instance, as the mortuary, soul-shot, or corpse present, a claim for the last dress worn by persons brought to a priest for burial, or some exaggerated commutation thereof.

That such was the demoralized condition of the English Church, and such its iniquitous relations to the people, we have the most unimpeachable evidence, under circumstances of an imposing and solemn character.

Accusation against the clergy by the House of Commons.

The House of Commons brought an accusation against the clergy before the king. When Parliament met A.D. 1529, that House, as its very first act, declared to the sovereign that sedition and heresy were pervading the land, and that it had become absolutely necessary to apply a corrective. It affirmed that the troubles into which the realm had fallen were attributable to the clergy; that the chief foundation, occasion, and cause thereof was the parallel jurisdiction of the Church and State; that the incompatible legislative authority of convocation lay at the bottom of the mischief. Among other specific points it alleged the following: That the houses of convocation made laws without the royal assent, and without the consent or even the knowledge of the people; that such laws were never published in the English language, and that, nevertheless, men were daily punished under them without ever having had an opportunity to eschew the penalties; that the demoralization extended from the Archbishop of Canterbury down to the lowest priest, that dignitary having tampered

with the dispatch of justice in his Court of Arches; that parsons, vicars, priests, and curates were in the habit of denying the administration of the sacraments save upon the payment of money; that poor men were harassed without any legal cause in the spiritual courts for the mere purpose of extortion, and exorbitant fees were exacted from them without cause; that the probate of wills was denied except on the gratification of the appetite of prelates and ordinaries for money; that the high ecclesiastics extorted large sums for the induction of persons into benefices, and that they did daily confer benefices on "young folk," their nephews and relatives, being minors, for the purpose of detaining the fruits and profits in their own hands; that the bishops illegally imprisoned, sometimes for a year or more, persons in their jails, without informing them of the cause of their imprisonment or the name of their accuser; that simple, unlearned men, and even "well-witted" ones, were entrapped by subtle questions into heresy in the ecclesiastical courts, and punishment procured against them.

These are serious charges; they imply that the Church had degenerated into a contrivance for the extortion of money. The House of Commons petitioned the king to make such laws as should furnish a remedy. The king submitted the petition to the bishops, and required of them an answer.

In that answer the ecclesiastical manner of thought is very striking. The bishops insist that the laws of the realm shall give way to the canon law, or, if incompatible, shall be altered so as to suit it; they identify attacks on themselves with those on the doctrine of the Church, a time-honored and well-tried device; they affirm that they have no kind of enmity against the laymen, "their ghostly children," but only against the pestilent poison of heresy; that their authority for making laws is grounded on the Scriptures, to which the laws of the realm must be made to conform; that they can not conscientiously permit the king's consent to the laws, since that would be to put him in the stead of God, under whose inspiration they are made; that, as to troubling poor men, it is the Holy Ghost who inspireth them to acts tending to the wealth of his elect folk, that, if any ecclesiastic hath offended in this respect, though "in multis offendimus omnes," as St. James hath it, let him bear his own fault, and let not the whole Church be blamed; that the Protestants, their antagonists, are lewd, idle fellows, who have embraced the abominable opinions recently sprung up in Germany; that there are many advantages in commuting Church penances and censures for money; that tithes are a divine institution, and that debts of money owing to God may be recovered after one hundred or seven hundred years of non-payment, since God can never lose his rights thereto; that, however, it is not well to collect a tithe twice over; that priests may lawfully engage in secular occupations of a cer-

Reply of the bishops to that accusation.

tain kind; that the punishments inflicted on the laymen have been for the health of their souls, and that, generally, the saints may claim powers to which common men are not entitled.

A fierce struggle between the Commons and the bishops ensued; but the House was firm, and passed several bills, and among them the Clergy Discipline Act. The effect was to cut down ecclesiastical incomes, probate and legacy duties were defined, mortuaries were curtailed, extortionate fees for burial terminated, clergymen were forbidden to engage in farming, tanning, brewing, or to buy merchandise for the purpose of selling it again. It was made unlawful any longer to hold eight or nine benefices, or to purchase dispensations for not doing duty; they were compelled to reside in the parishes for the care of which they were paid, under penalty of £10 a month; and it was made a high penal offense to obtain dispensations from any of the provisions of this act from Rome.

Nothing could be more significant of the position of the parties than the high-toned, the conservative moderation of these acts. The bishops did not yield, however, without a struggle. In all directions from the pulpits arose a cry of "atheism," "lack of faith," "heresy." But the House resolutely stood to its ground. Still more, it sent its speaker to the king with a complaint against the Bishop of Rochester, who had dared to stigmatize it as "infidel." The bishop was compelled to equivocate and apologize.

The English nation and their king were thus together in the suppression of the monasteries; they were together in the enforcing of ecclesiastical reforms. It was nothing but this harmony which so quickly brought the clergy to reason, and induced them, in 1532, to anticipate both Parliament and the people in actually offering to separate themselves from Rome. In the next year the king had destroyed the vast power which in so many centuries had gathered round ecclesiastical institutions, and had forced the clergy into a fitting subordination. Henceforth there was no prospect that they would monopolize all the influential and lucrative places in the realm; henceforth, year by year, with many vicissitudes and changes, their power continued to decline. Their special pursuit, theology, was separated more and more perfectly from politics. In the House of Lords, of which they had once constituted one half, they sank to a mere shadow.

Henry VIII. can not, therefore, be properly considered as the author of the downfall of ecclesiasticism in England, though he was the instrument by which it was ostensibly accomplished. The derisive insinuation that the Gospel light had flashed upon him from Anna Boleyn's eyes was far from expressing all the truth. The nullity of papal disciplines, excommunications, interdicts, penances, proved that the old tone it was utterly decayed. This oblivion

The House passes
the Clergy Discipline
Act.

The Church
is compelled
to submit.

The king is
sustained by
his people.

Religious feeling
of the nation
changed.

of old emotions, this obsolescence of old things, was by no means confined to England. On the Continent the attacks of Erasmus on the monks were every where received with applause. In 1527 one printer issued an edition of 24,000 copies of the Colloquies of Erasmus, and actually sold them all. He understood the signs of the times.

From this digression on parties and policy in England, let us again return to special details, descending for that purpose to the close of the seventeenth century. For a long time London had been the most populous capital in Europe; yet it was dirty, ill built, without sanitary provisions. The deaths were one in twenty-three each year; now, in a much more crowded population, they are not one in forty. Much of the country was still heath, swamp, warren. Almost within sight of the city was a tract twenty-five miles round nearly in a state of nature; there were but three houses in it. Wild animals roamed here and there, very much as they do in our Western territories. It is incidentally mentioned that Queen Anne, on a journey to Portsmouth, saw a herd of five hundred red deer. With such small animals as the marten and badger, found every where, there was still seen occasionally the wild bull.

State of England at the close of the seventeenth century.

Wild state of the country.

Nothing more strikingly shows the social condition than the provisions for locomotion. In the rainy seasons the roads were all but impassable, justifying the epithet often applied to them of being in a horrible state. Through such gullies, half filled with mud, carriages were dragged, often by oxen, or, when horses were used, it was as much a matter of necessity as in the city a matter of display to drive half a dozen of them. If the country was open the track of the road was easily mistaken. It was no uncommon thing for persons to lose their way, and have to spend the night out in the air. Between places of considerable importance the roads were sometimes very little known, and such was the difficulty for wheeled carriages that a principal mode of transport was by pack-horses, of which passengers took advantage, stowing themselves away between the packs. We shall probably not dissent from their complaint that this method of traveling was hot in summer and cold in winter. The usual charge for freight was thirty cents per ton per mile. Toward the close of the century what were termed "flying coaches" were established; they could move at the rate of from thirty to fifty miles in a day. Many persons thought the risk so great that it was a tempting of Providence to go in them. The mail-bag was carried on horseback at about five miles an hour. A penny-post had been established in the city, but with much difficulty, for many long-headed men, who knew very well what they were saying, had denounced it as an insidious "popish contrivance."

Locomotion: the roads and carriages.

The mails; penny-post disliked.

Only a few years before the period under consideration Parliament

had resolved that "all pictures in the royal collection which contained representations of Jesus or the Virgin Mother should be burnt; Greek statues were delivered over to Puritan stone-masons to be made decent"

Lewis Muggleton;
his doctrines. A little earlier, Lewis Muggleton had given himself out as the last and greatest of the prophets, having power to save or damn whom he pleased. It had been revealed to him that God is only six feet high, and the sun only four miles off. The country beyond the Trent was still in a state of barbarism, and near the sources of the Tyne there were people scarcely less savage than American Indians, their "half-naked women chanting a wild measure, while the men, with brandished dirks, danced a war-dance."

At the beginning of the eighteenth century there were thirty-four Printing-presses
and private li-
braries. counties without a printer. The only press in England north of the Trent was at York. As to private libraries, there were none deserving the name. "An esquire passed for a great scholar if Hudibras, Baker's Chronicle, Tarleton's Jests, and the Seven Champions of Christendom lay in his hall-window." It might be expected that the women were ignorant enough when very few men knew how to write correctly or even intelligibly, and it had become unnecessary for clergymen to read the Scriptures in the original tongues.

Social discipline;
its barbarity. Social discipline was very far from being of that kind which we call moral. The master whipped his apprentice, the pedagogue his scholar, the husband his wife. Public punishments partook of the general brutality. It was a day for the rabble when some culprit was set in the pillory to be pelted with brickbats, rotten eggs, and dead cats; when women were fastened by the legs in the stocks at the market-place, or a pilferer flogged through the town at the cart-tail, a clamor not unfrequently arising unless the lash were laid on hard enough "to make him howl." In punishments of higher offenders these whippings were perfectly horrible; thus Titus Oates, after standing twice in the pillory, was whipped, and, after an interval of two days, whipped again. A virtuoso in these matters gives us the incredible information that he counted as many as seventeen hundred stripes administered. So far from the community being shocked at such an exhibition, they appeared to agree in the sentiment that, "since his face could not be made to blush, it was well enough to try what could be done with his back." Such a hardening of heart was in no little degree promoted by the atrocious punishments of state offenders: thus, after the decapitation of Montrose and Argyle, their heads decorated the top of the Tolbooth; and gentlemen, after the rising of Monmouth, were admonished to be careful of their ways, by hanging in chains to their park gate the corpse of a rebel to rot in the air.

To a debased public life private life corresponded. The houses of the rural population butts covered with straw-thatch; their in-

mates, if able to procure fresh meat once a week, were considered to be in prosperous circumstances. One half of the families in England could hardly do that. Children of six years old were not unfrequently set to labor. The lord of the manor spent his time in rustic pursuits; was not an unwilling associate of peddlers and drovers; knew how to ring a pig or shoe a horse; his wife and daughters "stitched and spun, brewed gooseberry wine, cured marigolds, and made the crust for the venison pasty." Hospitality was displayed in immoderate eating, and drinking of beer, the guest not being considered as having done justice to the occasion unless he had gone under the table. The dining-room was uncarpeted; but then it was tinted with a decoction of "soot and small beer." The chairs were rush-bottomed. In London the houses were mostly of wood and plaster, the streets filthy beyond expression. After nightfall a passenger went at his peril, for chamber windows were opened and slop-pails unceremoniously emptied down. There were no lamps in the streets until Master Heming established his public lanterns. As a necessary consequence, there were plenty of shoplifters, highwaymen, and burglars.

Private life in different classes of society.

As to the moral condition, it is fearfully expressed in the statement that men not unfrequently were willing to sacrifice their country for their religion. Hardly any personage died who was not popularly suspected to have been made away with by poison, an indication of the morality generally supposed to prevail among the higher classes. If such was the state of society in its serious aspect, it was no better in its lighter. We can scarcely credit the impurity and immodesty of the theatrical exhibitions. What is said about them would be beyond belief if we did not remember that they were the amusements of a community whose ideas of female modesty and female sentiment were altogether different from ours. Indecent jests were put into the mouths of lively actresses, and the dancing was not altogether of a kind to meet our approval. The rural clergy could do but little to withstand this flood of immorality. Their social position for the last hundred years had been rapidly declining; for, though the Church possessed among her dignitaries great writers and great preachers, her lower orders, partly through the political troubles that had befallen the state, but chiefly in consequence of sectarian bitterness, had been reduced to a truly menial condition. It was the business of the rich man's chaplain to add dignity to the dinner-table by saying grace "in full canonicals," but he was also intended to be a butt for the mirth of the company. "The young Levite," such was the phrase then in use, "might fill himself with the corned beef and the carrots, but as soon as the tarts and cheese-cakes made their appearance he quitted his seat, and stood aloof till he was summoned to return thanks for the repast," the daintiest part of which he had not tasted. If need arose, he

General immorality and brutality.

Degraded condition of the lower clergy.

could carry a horse, "carry a parcel ten miles," or "cast up the farrier's bill." The "wages" of a parish priest were at starvation-point. The social degradation of the ecclesiastic is well illustrated by an order of Queen Elizabeth, that no clergyman should presume to marry a servant-girl without the consent of her master or mistress.

The clergy, however, had not fallen into this condition without in a measure deserving it. Their time had been too much occupied in persecuting Puritans and other sectaries, with whom they would have gladly dealt in the same manner as they had dealt with the Jews, who, from the thirteenth century till Cromwell, were altogether interdicted from public worship. The University of Oxford had ordered the political works of Buchanan, Milton, and Baxter to be publicly burnt Burning of books and persecution of preachers. in the court of the schools. The immortal vagabond, Bunyan, had been committed to jail for preaching out of his head the way of salvation to the common people, and had remained there twelve years, the stout old man refusing to give his promise not to offend in that manner again. The great doctrine inculcated from the pulpit was submission to temporal power. Men were taught that rebellion is a sin not less deadly than witchcraft. On a community thirsting after the waters of life were still inflicted wearisome sermons respecting "the wearing of surplices, position at the Eucharist, or the sign of the cross at baptism," things that were a stench in the nostrils of the lank-haired Puritan, who, with his hands clasped on his bosom, his face corrugated with religious astringency, the whites of his eyes turned upward to heaven, rocking himself alternately on his heels and the tips of his toes, delivered, in a savory prayer uttered through his nose, all such abominations of the Babylonish harlot to the Devil, whose affairs they were.

In administering the law, whether in relation to political or religious offenses, there was an incredible atrocity. In London, Brutal administration of the law. the crazy old bridge over the Thames was decorated with grinning and mouldering heads of criminals, under an idea that these ghastly spectacles would fortify the common people in their resolves to act according to law. The toleration of the times may be understood from a law enacted by the Scotch Parliament, May 8, 1685, that whoever preached or heard in a conventicle should be punished with death and the confiscation of his goods. That such an infamous spirit did not content itself with mere dead-letter laws there is too much practical evidence to permit any one to doubt. A silly laboring man, who had taken it into his head that he could not conscientiously attend the Episcopal worship, was seized by a troop of soldiers, "rapidly examined, convicted of non-conformity, and sentenced to death in the presence of his wife, who led one little child by the hand, and it was easy to see was about to give birth to another." The woman was shot before her face, the wid-

ow crying out in her agony, 'Well, sir, well, the day of reckoning will come.'" Shrieking Scotch Covenanters were submitted to torture by crushing their knees flat in the boot; women were tied to stakes on the sea-sands and drowned by the slowly advancing tide because they would not attend Episcopal worship, or branded on their cheeks and then shipped to America; gallant but wounded soldiers were hung in Scotland for fear they should die before they could be got to England. In the troubles connected with Monmouth's rising, in one county alone, Somersetshire, two hundred and thirty-three persons were hanged, drawn, and quartered, to say nothing of military executions, for the soldiers amused themselves by hanging a culprit for each toast they drank, and making the drums and fifes play, as they said, to his dancing. It is needless to recall such incidents as the ferocity of Kirk's lambs, for such was the name popularly given to the soldiers of that colonel, in allusion to the Paschal lamb they bore on their flag; or the story of Tom Boilman, so nicknamed from having been compelled by those veterans to seethe the remains of his quartered friends in melted pitch. Women, for such idle words as women are always using, were sentenced to be whipped at the cart's-tail through every market town in Dorset; a lad named Tutching condemned to be flogged once a fortnight for seven years. Eight hundred and forty-one human beings judicially condemned to transportation to the West India islands, and suffering all the horrible pains of a slave-ship in the middle passage, "were never suffered to go on deck;" in the holds below, "all was darkness, stench, lamentation, disease, and death." One fifth of them were thrown overboard to the sharks before they reached their destination, and the rest obliged to be fattened before they could be offered in the market to the Jamaica planters. The court ladies, and even the Queen of England herself, were so utterly forgetful of womanly mercy and common humanity as to join in this infernal traffic. That princess requested that a hundred of the convicts should be given to her. "The profit which she cleared on the cargo, after making a large allowance for those who died of hunger and fever during the passage, can not be estimated at less than a thousand guineas."

It remains to add a few words respecting the state of literature. This, at the end of the seventeenth century, had become indescribably profligate, and, since the art of reading was by no means generally cultivated, the most ready method of literary communication was through theatrical representation. It was for that reason that play-writing was the best means of literary remuneration, if we except the profit derived from the practice which, to some extent, survives, though its disgraceful motive has ceased, of dedicating books to rich men for the sake of the fee they would give. It is said that books have actually been printed in consideration of the profits of the dedication. Espe-

Profligate condition of literature.

cially in the composition of plays was it judged expedient to minister to the depraved public taste by indecent expressions, or allusions broad and sly. The playwright was at the mercy of an audience who were critical on that point, and in a position, if he should not come up to the required standard, to damn him and his work in an instant. From these remarks must be excepted the writings of Milton, which are nowhere stained by such a blemish. And yet posterity will perhaps with

Milton's Paradise Lost.

truth assert that *Paradise Lost* has wrought more intellectual evil than even its base contemporaries, since it has familiarized educated minds with images which, though in one sense sublime, in another are most unworthy, and has taught the public a dreadful materialization of the great and invisible God. A Manichean composition in reality, it was mistaken for a Christian poem.

The progress of English literature not only offers striking proofs of the manner in which it was affected by theatrical representations, but also furnishes an interesting illustration of that necessary course through which intellectual development must pass. It is difficult for us, who live in a reading community, to comprehend the influence once exercised by the pulpit and the stage in the instruction of a non-reading people. As late as the sixteenth century they were the only means of mental access to the public, and we should find, if we were to enter on a detailed examination of either one or the other, that they furnish a vivid reflection of the popular intellectual condition. Leaving to others such interesting researches into the comparative anatomy of the English pulpit, I may, for a moment, direct attention to theatrical exhibitions.

There are three obvious phases through which the drama has passed, corresponding to as many phases in the process of intellectual development. These are respectively the miracle play, corresponding to the stage of childhood; the moral, corresponding to that of youth; the real, corresponding to that of manhood. In them respectively the supernatural, the theological, the positive predominates. The first went out of fashion soon after the middle of the fifteenth century, the second continued for about one hundred and fifty years, the third still remains. By the miracle play is understood a representation of Scripture incidents, enacted, however, without any regard to the probabilities of time, place, or action; such subjects as the Creation, the fall of man, the Deluge, being considered as suitable, and in these scenes, without any concern for chronology, other personages, as the pope or Mohammed, being introduced, or the Virgin Mary wearing a French hood, or Virgil worshipping the Savior. Our forefathers were not at all critical historians; they indulged without stint in a highly pleasing credulity. They found no fault in admitting that Mohammed was originally a heretic out of spite because he was not

Its successive phases.

elected pope; that, since the taking of the true cross by the Turks, all Christian children have twenty-two instead of thirty-two teeth, as was the case before that event; and that men have one rib less than women, answering to that taken from Adam. The moral play personifies virtues, vices, passions, goodness, courage, honesty, love. The real play introduces human actors, with a plot free from the supernatural, and probability is outraged as little as possible. Its excellency consists in the perfect manner in which it delineates human character and action.

The miracle play was originally introduced by the Church, the first dramas of the kind, it is said, having been composed by Gregory Nazianzen. They were brought from Constantinople by the Crusaders; the Byzantines were always infatuated with theatrical shows. The parts of these plays were often enacted by ecclesiastics, and not unfrequently the representations took place at the abbey gate. So highly did the Italian authorities prize the influence of these exhibitions on the vulgar, that the pope granted a thousand days of pardon to any person who should submit to the pleasant penance of attending them. All the arguments that had been used in behalf of picture-worship were applicable to these plays; even the Passion, Resurrection, and Ascension were represented. Over illiterate minds a coarse but congenial influence was obtained; a recollection, though not an understanding of sacred things. In the play of "the Fall of Lucifer," that personage was introduced, according to the vulgar acceptation, with horns, and tail, and cloven hoof; his beard, however, was red, our forefathers having apparently indulged in a singular antipathy against hair of that color. There still remain accounts of the expenses incurred on some of these occasions, the coarse quaintness of which is not only amusing, but also shows the debased ideas of the times. For instance, in "Mysteries," enacted at Coventry, are such entries as "paid for a pair of gloves for God;" "paid for gilding God's coat;" "dyvers necessities for the trimmyng of the Father of Heaven." In the play of the "Shepherds" there is provision for green cheese and Halton ale, a suitable recruitment after their long journey to the birthplace of our Savior. "Paid to the players for rehearsal: imprimis, to God, iis. vii. d.; to Pilate his wife, iis.; item, for keeping fyre at hell's mouth, iiii. d." A strict attention to chronology is not exacted; Herod swears by Mohammed, and promises one of his councilors to make him pope. Noah's wife, who, it appears, was a termagant, swears by the Virgin Mary that she will not go into the ark, and, indeed, is only constrained so to do by a sound cudgeling administered by the patriarch, the rustic justice of the audience being particularly directed to the point that such a flogging should not be given with a stick thicker than her husband's thumb. The sentiment of modesty seems not to have been very exacting, since in the play of "the Fall of Man" Adam and Eve appear entirely naked; one

of the chief incidents is the adjustment of the fig-leaves. Many such circumstances might be related, impressing us perhaps with an idea of the obscenity and profanity of the times. But this would scarcely be a just conclusion. As the social state improved, we begin to find objections raised by the more thoughtful ecclesiastics, who refused to lend the holy vestments for such purposes, and at last succeeded in excluding these exhibitions from consecrated places. After dwindling down by degrees, these plays lingered in the booths at fairs or on market-days, the Church having resigned them to the guilds of different trades, and these, in the end, giving them up to the mountebank. And so they died. Their history is the outward and visible sign of a popular intellectual condition in process of passing away.

The mystery and miracle plays were succeeded by the moral play. Moral plays; their nature. It has been thought by some, who have studied the history of the English theatre, that these plays were the result of the Reformation, with the activity of which movement their popularity was coincident. But perhaps the reader who is impressed with the principle of that definite order of social advancement so frequently referred to in this book will agree with me that this relation of cause and effect can hardly be sustained, and that devotional exercises and popular recreations are in common affected by antecedent conditions. Of the moral play, a very characteristic example still remains under the title of "Everyman." It often delineates personification and allegory with very considerable power. This short phase of our theatrical career deserves a far closer attention than it has hitherto obtained, for it has left an indelible impression on our literature. I think that it is to this, in its declining days, that we are indebted for much of the machinery of Bunyan's *Pilgrim's Progress*. Whoever will compare that work with such plays as "Everyman" and "Lusty Juventus," can not fail to be struck with their resemblances. Such personages as "Good Counsel," "Abominable Living," "Hypocrasie," in the play, are of the same family as those in the *Progress*. The stout Protestantism of both is at once edifying and amusing. An utter contempt for "holy stocks and holy stones, holy clouts and holy bones," as the play has it, animates them all. And it can hardly be doubted that the immortal tinker, in the carnal days when he played at tipcat and romped with the girls on the village green at Elstow, indulged himself in the edification of witnessing these dramatic representations.

As to the passage from this dramatic phase to the real, in which the character and actions of man are portrayed, to the exclusion Real plays, Shakspeare. of the supernatural, it is only necessary to allude with brevity—indeed, it is only necessary to recall one name, and that one name is Shakspeare. He stands, in his relations to English literature, in the same position that the great Greek sculptors stood with respect to an-

cient art, embodying conceptions of humanity in its various attributes with indescribable skill, and with an exquisite agreement to nature.

Not without significance is it that we find mystery in the pulpit and mystery on the stage. They appertain to social infancy. The pulpit and the stage. Such dramas as those I have alluded to, and many others that, if space had permitted, might have been quoted, were in unison with the times. The abbey was boasting of such treasures as the French hood of the Virgin, "her smocke or shifte," the manger in which Christ was laid, the spear which pierced his side, the crown of thorns. The transition from this to the following stage is not without its political attendants, the prohibition of interludes containing any thing against the Church of Rome, the royal proclamation against preaching out of one's own brain, the appearance of the Puritan upon the national stage, an increasing acerbity of habit and sanctimoniousness of demeanor.

With peculiar facility we may therefore, through an examination of the state of the drama, determine national mental condition. The same may be done by a like examination of the state of the pulpit. Whoever will take the trouble to compare the results together can not fail to observe how remarkably they correspond.

Such was the state of the literature of amusement; as to political literature, even at the close of the period we are considering, it could not be expected to flourish after the judges had declared that no man could publish political news except he had been duly authorized by the crown. Newspapers were, however, beginning to be periodically issued, and, if occasion called for it, broadsides, as they were Newspapers and coffee-houses. termed, were added. In addition, newsletters were written by enterprising individuals in the metropolis, and sent to rich persons who subscribed for them; they then circulated from family to family, and doubtless enjoyed a privilege which has not descended to their printed contemporary, the newspaper, of never becoming stale. Their authors compiled them from materials picked up in the gossip of the coffee-houses. The coffee-houses, in a non-reading community, were quite an important political as well as social institution. They were of every kind, prelati- cal, popish, Puritan, scientific, literary, Whig, Tory. Whatever a man's notions might be, he could find in London, in a double sense, a coffee-house to his taste. In towns of considerable importance the literary demand was insignificant; thus it is said that the father of Dr. Johnson, the lexicographer, peddled books from town to town, and was accustomed to open a stall in Birmingham on market-days, and it is added that this supply of literature was equal to the demand.

The liberty of the press has been of slow growth. Scarcely had printing been invented when it was found necessary every where to place it under some restraint, as was, for instance, Liberty of the press slowly secured. done by Rome in her Index Expurgatorius of prohibited books, and the

putting of printers who had offended under the ban; the action of the University of Paris, alluded to (p. 472), was essentially of the same kind. In England, at first, the press was subjected to the common law; the crown judges themselves determined the offense, and could punish the offender with fine, imprisonment, or even death. Within the last century this power of determination has been taken from them, and a jury must decide, not only on the fact, but also on the character of the publication, whether libelous, seditious, or otherwise offensive. The press thus came to be a reflector of public opinion, casting light back upon the public; yet, as with other reflectors, a portion of the illuminating power is lost. The restraints under which it is laid are due, not so much to the fear that liberty would degenerate into license, for public opinion would soon correct that; they are rather connected with the necessities of the social state.

Whoever will examine the condition of England at successive periods during her passage through the Age of Faith will see how slow was her progress, and will, perhaps, be surprised to find at its close how small was her advance. The ideas that had served her for so many centuries as a guide had rather obstructed than facilitated her way. But whoever will consider what she has done since she fairly entered on her Age of Reason will remark a wonderful contrast. There has not been a progress in physical conditions only—a securing of better food, better clothing, better shelter, swifter locomotion, the procurement of individual happiness, an extension of the term of life. There has been a great moral advancement. Such atrocities as those mentioned in the foregoing paragraphs are now impossible, and so unlike our own manners that doubtless we read of them at first with incredulity, and with difficulty are brought to believe that these are the things our ancestors did. What a difference between the dilatoriness of the past, its objectless exertions, its unsatisfactory end, and the energy, the well-directed intentions of the present age, which have already yielded results like the prodigies of romance.

Contrast between
progress in the
ages of Faith and
Reason.

CHAPTER XXII.

THE EUROPEAN AGE OF REASON.

REJECTION OF AUTHORITY AND TRADITION, AND ADOPTION OF SCIENTIFIC TRUTH.—DISCOVERY OF THE TRUE POSITION OF THE EARTH IN THE UNIVERSE.

Ecclesiastical Attempt to enforce the GEOCENTRIC DOCTRINE that the Earth is the Centre of the Universe, and the most important Body in it.

The HELIOCENTRIC DOCTRINE that the Sun is the Centre of the Solar System, and the Earth a small Planet, comes gradually into Prominence.

Struggle between the Ecclesiastical and Astronomical Parties.—Activity of the Inquisition.—Burning of Bruno.—Imprisonment of GALILEO.

INVENTION OF THE TELESCOPE.—Complete Overthrow of the Ecclesiastical Idea.—Rise of Physical Astronomy.—NEWTON.—Rapid and resistless Development of all Branches of Natural Philosophy.

Final Establishment of the Doctrine that the Universe is under the Dominion of mathematical, and, therefore, necessary Laws.

Progress of Man from Anthropocentric Ideas to the Discovery of his true Position and Insignificance in the Universe.

THE Age of Reason in Europe was ushered in by an astronomical controversy.

Is the earth the greatest and most noble body in the universe, round which, as an immovable centre, the sun, and the various planets, and stars revolve, ministering by their light and other qualities to the wants and pleasures of man, or is it an insignificant orb—a mere point—submissively revolving, among a crowd of compeers and superiors, around a central sun? The former of these views was authoritatively asserted by the Church; the latter, timidly suggested by a few thoughtful and religious men at first, in the end gathered strength and carried the day.

Behind this physical question—a mere scientific problem—lay something of the utmost importance—the position of man in the universe. The conflict broke out upon an ostensible issue, but every one saw what was the real point in the dispute.

In the history of the Age of Reason in Europe, which is to fill the remaining pages of this book, I am constrained to commence with this astronomical controversy, and have therefore been led by that circumstance to complete the survey of the entire period from the same, that is, the scientific point of view. Many different modes of treating it spontaneously present themselves; but so vast are the subjects to be brought under consideration, so numerous their connections, and so limited the space at my disposal, that I must give the preference

to one which, with sufficient copiousness, offers also precision. Whoever will examine the progress of European intellectual advancement thus far manifested will find that it has concerned itself with three great questions: 1. The ascertainment of the position of the earth in the universe; 2. The history of the earth in time; 3. The position of man among living beings. Under this last is ranged all that he has done in scientific discovery, and all those inventions which are the characteristics of the present industrial age.

Where am I? What am I? we may imagine to have been the first exclamations of the first man awakening to conscious existence. Here, in our Age of Reason, we have been dealing with the same thoughts. They are the same which, as we have seen, occupied Greek intellectual life.

When Halley's comet appeared in 1456, it was described by those who saw it as an object of "unheard-of magnitude;" its tail, which shook down "diseases, pestilence, and war" upon earth, reached over a third part of the heavens. It was considered as connected with the progress of Mohammed II., who had just then taken Constantinople. It struck terror into all people. From his seat, invisible to it, in Italy, the sovereign pontiff, Calixtus III., issued his ecclesiastical fulminations; but the comet in the heavens, like the sultan on the earth, pursued its course undeterred. In vain were all the bells in Europe ordered to be rung to scare it away; in vain was it anathematized; in vain were prayers put up in all directions to stop it. True to its time, it punctually returns from the abysses of space, uninfluenced by any thing save agencies of a material kind. A signal lesson for the meditations of every religious man.

Among the clergy there were, however, some who had more correct cosmic ideas than those of Calixtus. A century before Copernicus, Cardinal de Cusa had partially adopted the heliocentric theory, as taught in the old times by Philolaus, Pythagoras, and Archimedes. He ascribed to the earth a globular form, rotation on its axis, and a movement in space; he believed that it moves round the sun, and both together round the pole of the universe.

By geocentric theory is meant that doctrine which asserts the earth to be the immovable centre of the universe; by heliocentric theory that which demonstrates the sun to be the centre of our planetary system, implying, as a necessary inference, that the earth is a very small and subordinate body revolving round the sun.

I have already, in sufficient detail, described how the Roman Church had been constrained by her position to uphold the geocentric doctrine. She had come to regard it as absolutely essential to her system, the intellectual basis of which she held would be sapped if this were undermined. Hence it was that such an alarm

Roman astronomical ideas.

More correct ideas among some of the clergy.

The geocentric and heliocentric theories.

The geocentric doctrine adopted by the Church.

earth, and hence the surpassing importance of the successful voyage of Magellan's ship. That indisputable demonstration of the globular figure was ever a solid support to the scientific party in the portentous approaching conflict.

Preparations had been silently making for a scientific revolution in various directions. The five memoirs of Cardinal Alliacus ^{Preparations for the heliocentric doctrine.} "On the Concordance of Astronomy with Theology," show the turn that thought was taking. His *Imago mundi* was published in 1460, and is said to have been a favorite work with Columbus. In the very Cathedral of Florence, Toscanelli had constructed his celebrated gnomon, 1468, a sun-ray, auspicious omen! being admitted through a plate of brass in the lantern of the cupola. John Muller, better known as Regiomontanus, had published an abridgment of Ptolemy's *Almagest*, 1520. Euclid had been printed with diagrams on copper as long before as 1482, and again in Venice twenty-three years subsequently. The *Optics* of Vitello had been published 1533. Fernel, physician to Henry II. of France, had even ventured so far, supported by Magellan's voyage, as to measure, 1527, the size of the earth, his method being to observe the height of the pole at Paris, then to proceed northward until its elevation was increased exactly one degree, and to ascertain the distance between the stations by the number of revolutions of his carriage wheel. He concluded that it is 24,480 Italian miles round the globe. * The last attempt of the kind had been that of the Khalif Almaimon seven hundred years previously on the shore of the Red Sea, and with nearly the same result. The mathematical sciences were undergoing rapid advancement. Rhæticus had published his trigonometrical tables; Cardan, Tartaglia, Scipio Ferreo, and Stefel were greatly improving algebra.

The first formal assertion of the heliocentric theory was made in a timid manner, strikingly illustrative of the expected opposition. It was by Copernicus, a Prussian, speaking of the revolutions of the ^{Copernicus, the works of.} heavenly bodies; the year was about 1536. In his preface, addressed to Pope Paul III., whether written by himself, or, as some have affirmed, for him by Andreas Osiander, he complains of the imperfections of the existing system, states that he has sought among ancient writers for a better way, and so had learned the heliocentric doctrine. "Then I too began to meditate on the motion of the earth, and, though it appeared an absurd opinion, yet, since I knew that in previous times others had been allowed the privilege of feigning what circles they chose in order to explain the phenomena, I conceived that I might take the liberty of trying whether, on the supposition of the earth's motion, it was possible to find better explanations than the ancient ones of the revolutions of the celestial orbs."

"Having, then, assumed the motions of the earth, which are hereafter explained, by laborious and long observation I at length found that, if

the motions of the other planets be compared with the revolution of the earth, not only their phenomena follow from the suppositions, but also that the several orbs and the whole system are so connected in order and magnitude that no one point can be transposed without disturbing the rest, and introducing confusion into the whole universe."

The apologetic air with which he thus introduces his doctrine is again remarked in his statement that he had kept his book for thirty-six years, and only now published it at the entreaty of Cardinal Schomberg. The cardinal had begged of him a manuscript copy. "Though I know that the thoughts of a philosopher do not depend on the judgment of the many, his study being to seek out truth in all things as far as is permitted by God to human reason, yet, when I considered how absurd my doctrine would appear, I long hesitated whether I should publish my book, or whether it were not better to follow the example of the Pythagoreans and others, who delivered their doctrine only by tradition and to friends." He concludes: "If there be vain babblers, who, knowing nothing of mathematics, yet assume the right of judging on account of some place of Scripture perversely wrested to their purpose, and who blame and attack my undertaking, I heed them not, and look upon their judgments as rash and contemptible."

Copernicus clearly recognized not only the relative position of the earth, but also her relative magnitude. He says the magnitude of the world is so great that the distance of the earth from the sun has no apparent magnitude when compared with the sphere of the fixed stars.

To the earth Copernicus attributed a triple motion—a daily rotation on her axis, an annual motion round the sun, a motion of declination of the axis. The latter seemed to be necessary to account for the constant direction of the pole; but as this was soon found to be a misconception, the theory was relieved of it. With this correction, the doctrine of Copernicus presents a clear and great advance, though in the state in which he offered it he was obliged to retain the mechanism of epicycles and eccentrics, because he considered the planetary motions to be circular. It was the notion that, since the circle is the most simple of all geometrical forms, it must therefore be the most natural, which led to this imperfection. His work was published in 1543. He died a few days after he had seen a copy.

Against the opposition it had to encounter, the heliocentric theory made its way slowly at first. Among those who did adopt it were some whose connection served rather to retard its progress, because of the ultraism of their views or the doubtfulness of their social position. Such was Bruno, who contributed largely to its introduction into England, and who was the author of a work on the Plurality of Worlds, and the conception that every star is a sun, having opaque

Introduction of
his system.

He fears being
accused of heresy.

Early correction
of the Coperni-
can theory.

Giordano Bruno
of Nola.

planets revolving round it—a conception to which the Copernican system suggestively leads. Bruno was born seven years after the death of Copernicus. He became a Dominican, but, like so many other thoughtful men of the times, was led into heresy on the doctrine of transubstantiation. Not concealing his opinions, he was persecuted, fled, and led a vagabond life in foreign countries, testifying that wherever he went he found skepticism under the polish of hypocrisy, and that he fought not against the belief of men, but against their pretended belief. For teaching the rotation of the earth he had to fly to Switzerland, and thence to England, where, at Oxford, he gave lectures on cosmology. Driven from England, France, and Germany in succession, he ventured in his extremity to return to Italy, and was arrested in Venice, where he was kept in prison in the Piombi for six years without books, or paper, or friends. Meantime the Inquisition demanded him as having written heretical works. He was therefore surrendered to Rome, and, after a farther imprisonment of two years, tried, excommunicated, and delivered over to the secular authorities, to be punished “as mercifully as possible, and without the shedding of his blood,” the abominable formula for burning a man alive. He had collected all the observations that had been made respecting the new star in Cassiopeia, 1572; he had taught that space is infinite, and that it is filled with self-luminous and opaque worlds, many of them inhabited—this being his capital offense. He believed that the world is animated by an intelligent soul, the cause of forms but not of matter; that it lives in all things, even such as seem not to live; that every thing is ready to become organized; that matter is the mother of forms and then their grave; that matter and the soul of the world together constitute God. His ideas were therefore pantheistic, “*Est Deus in nobis.*” In his “*Cena de le Cenere*” he insists that the Scripture was not intended to teach science, but morals only. The severity with which he was treated was provoked by his asseverations that he was struggling with an orthodoxy that had neither morality nor belief. This was the aim of his work entitled “*The triumphant Beast.*” He was burnt at Rome, February 16, 1600. With both a present and prophetic truth, he nobly responded, when the atrocious sentence was passed upon him, “Perhaps it is with greater fear that ye pass this sentence upon me than I receive it.” His tormentors jocosely observed, as the flames shut him out forever from view, that he had gone to the imaginary worlds he had so wickedly feigned.

This vigorous but spasmodic determination of the Church to defend herself was not without effect. It enabled her to hold fast the timid, the time-servers, the superficial. Among such may be mentioned Lord Bacon, who never received the Copernican system. With the audacity of ignorance, he presumed to criticise what he did not under-

He teaches
the heliocentric theory,

and is burnt
alive as a heretic.

stand, and, with a superb conceit, disparaged the great Copernicus. He Rejects the Copernican doctrine. says, "In the system of Copernicus there are many and grave difficulties; for the threefold motion with which he encumbers the earth is a serious inconvenience, and the separation of the sun from the planets, with which he has so many affections in common, is likewise a harsh step; and the introduction of so many immovable bodies in nature, as when he makes the sun and stars immovable, the bodies which are peculiarly lucid and radiant, and his making the moon adhere to the earth in a sort of epicycle, and some other things which he assumes, are proceedings which mark a man who thinks nothing of introducing fictions of any kind into nature, provided his calculations turn out well." The more closely we examine the writings of Lord Bacon, the more unworthy does he seem to have been of the great reputation which has been awarded to him. The popular delusion to which he owes so much originated at a time when the history of science was unknown. They who first brought him into notice knew nothing of the old school of Alexandria. This boasted founder of a new philosophy could not comprehend, and would not accept, the greatest of all scientific doctrines when it was plainly set before his eyes.

It has been represented that the invention of the true method of physical science was an amusement of Bacon's hours of relaxation from the more laborious studies of law and duties of a court. His chief admirers have been persons of a literary turn, who have an idea that scientific discoveries are accomplished by a mechanico-mental operation. The practical uselessness of his philosophy. Bacon never produced any great practical result himself, no great physicist has ever made any use of his method. He has had the same to do with the development of modern science that the inventor of the orrery has had to do with the discovery of the mechanism of the world. Of all the important physical discoveries, there is not one which shows that its author made it by the Baconian instrument. Newton never seems to have been aware that he was under any obligation to Bacon. Archimedes, and the Alexandrians, and the Arabians, and Leonardo da Vinci did very well before he was born; the discovery of America by Columbus and the circumnavigation by Magellan can hardly be attributed to him, yet they were the consequences of a truly philosophical reasoning. But the investigation of nature is an affair of genius, not of rules. No man can invent an organon for writing tragedies and Epic poems. Bacon's system is, in its own terms, an idol of the theatre. It would scarcely guide a man to a solution of the riddle of *Ælia Lælia Crispis*, or to that of the charade of Sir Hilary.

Few scientific pretenders have made more mistakes than Lord Bacon. His scientific errors. He rejected the Copernican system, and spoke insolently of its great author; he undertook to criticise adversely Gilbert's treatise "*De Magnete*;" he was occupied in the condemnation of any

investigation of final causes, while Harvey was deducing the circulation of the blood from Aquapendente's discovery of the valves in the veins; he was doubtful whether instruments were of any advantage, while Galileo was investigating the heavens with the telescope. Ignorant himself of every branch of mathematics, he presumed that they were useless in science, but a few years before Newton achieved by their aid his immortal discoveries. It is time that the sacred name of philosophy should be severed from its long connection with that of one who was a pretender in science, a time-serving politician, an insidious lawyer, a corrupt judge, a treacherous friend, a bad man.

But others were not so obtuse as Bacon. Gilbert, one of the best of the early English experimentalists, an excellent writer on magnetism, adopted the views of Copernicus. Milton, in *Paradise Lost*, set forth in language such as he only could use the objections to the Ptolemaic, and the probabilities of the Copernican system. Some of the more liberal ecclesiastics gave their adhesion. Bishop Wilkins not only presented it in a very popular way, but also made some sensible suggestions explanatory of the supposed contradictions of the new theory to the Holy Scriptures. It was, however, among geometers, as Napier, Briggs, Horrox, that it met with its best support. On the Continent the doctrine was daily making converts, and nightly gathering strength from the accordance of the tables of the motions of the heavenly bodies calculated upon its principles with actual observation.

It is by no means uninteresting to notice the different classes of men among whom this great theory was steadily winning its way. Experimental philosophers, Republican poets, Episcopal clergymen, Scotch lords, west of England schoolmasters, Italian physicists, Polish pedants, painstaking Germans, each from his own special point of view, was gradually receiving the light, and doubtless, from such varied influence, the doctrine would have vindicated its supremacy at last, though it might have taken a long time. On a sudden, however, there occurred a fortunate event, which led forthwith to that result by a new train of evidence, bringing the matter, under the most brilliant circumstances, clearly to the apprehension of every one. This great and fortunate event was the invention of the telescope.

It is needless for us to enter on any examination of the authorship of this invention. It is enough for our purpose to know that Lippershey, a Dutchman, had made one toward the close of 1608, and that Galileo, hearing of the circumstance, but without knowing the particulars of the construction, in April or May of the following year invented a form of it for himself. Not content with admiring how close and large it made terrestrial objects, he employed it for examining the heavens. On turning it to the moon, he found that she has

mountains casting shadows, and valleys like those of the earth. The discovery of innumerable fixed stars—not less than forty were counted by him in the well-known group of the Pleiades—up to that time unseen by man, was felt at once to offer an insuperable argument against the opinion that these bodies were created only to illuminate the night; indeed, it may be said that this was a death-blow to the time-honored doctrine of the human destiny of the universe. Already Galileo began to encounter vulgar indignation which accused him loudly of impiety. On January 7th, 1610, he discovered three of Jupiter's satellites, and a few days later the fourth. To these he gave the designation of the Medicean stars, and in his "Sidereal Messenger" published an account of the facts he had thus far observed. As it was perceived at once that this planet offered a miniature representation of the ideas of Copernicus respecting the solar system, this discovery was received by the astronomical party with the liveliest pleasure, by the ecclesiastical with the most bitter opposition, some declaring that it was a mere optical deception, some a purposed fraud, some that it was sheer blasphemy, and some, fairly carrying out to its consequences the absurd philosophy of the day, asserted that, since the pretended satellites were invisible to the naked eye, they must be useless, and, being useless, they could not exist. Continuing his observations, Galileo found that Saturn differs in an extraordinary manner from other planets; but the telescope he used not being sufficient to demonstrate the ring, he fell into the mistake that the body of the planet is triple. This was soon followed by the discovery of the phases of Venus, which indisputably established for her a motion round the sun, and actually converted what had hitherto, on all hands, been regarded as one of the weightiest objections against the Copernican theory, into a most solid support. "If the doctrine of Copernicus be true, the planet Venus ought to show phases like the moon, which is not the case;" so said the objectors. Copernicus himself saw the difficulty, and tried to remove it by suggesting that the planet might be transparent. The telescope of Galileo forever settled the question by showing that the expected phases do actually exist.

In the garden of Cardinal Bandini at Rome, A.D. 1611, Galileo publicly exhibited the spots upon the sun. He had observed them the preceding year. Goaded on by the opposition his astronomical discoveries were bringing upon him, he addressed a letter in 1613 to the Abbe Castelli, for the purpose of showing that the Scriptures were not intended as a scientific authority. This was repeating Bruno's offense. Hereupon the Dominicans, taking the alarm, commenced to attack him from their pulpits. It shows how reluctantly, and with what misgivings the higher ecclesiastics entered upon the quarrel, that Maraffi, the general of the Dominicans, apologized to Galileo.

leo for what had taken place. The astronomer now published another letter reiterating his former opinions, asserting that the Scriptures were only intended for our salvation, and otherwise defending himself, and recalling the fact that Copernicus had dedicated his book to Pope Paul III.

Through the suggestion of the Dominicans, Galileo was now summoned to Rome to account for his conduct and opinions before the Inquisition. He was accused of having taught that the earth moves; that the sun is stationary; and of having attempted to reconcile these doctrines with the Scriptures. The sentence was that he must renounce these heretical opinions, and pledge himself that he would neither publish nor defend them for the future. In the event of his refusal he was to be imprisoned. With the fate of Bruno in his recollection, he assented to the required recantation, and gave the promise demanded. The Inquisition then proceeded to deal with the Copernican system, condemning it as heretical; the letters of Galileo, which had given rise to the trouble, were prohibited; also Kepler's epitome of the Copernican theory, and also the work of Copernicus. In their decree prohibiting this work "de Revolutionibus," the Congregation of the Index, March 5, 1616, denounced the new system of the universe as "that false Pythagorean doctrine utterly contrary to the Holy Scriptures."

Again it appears how reluctant the Roman authorities were to interfere, and how they were impelled rather by the necessity of their position than by their personal belief in the course they had been obliged to take. After all that had passed, the pope, Paul V., admitted Galileo to an audience, at which he professed to him personally the kindest sentiments, and assured him of safety. When Urban VIII. succeeded to the pontifical chair, Galileo received the distinction of not less than six audiences; the pope conferred on him several presents, and added the promise of a pension for his son. In a letter to the Duke of Florence his holiness used the most liberal language, stated how dear to him Galileo was, that he had very lovingly embraced him, and requested the duke to show him every favor.

Whether it was that, under these auspicious circumstances, Galileo believed he could with impunity break through the engagement he had made, or whether an instinctive hatred of that intellectual despotism and hypocrisy which was weighing upon Europe became irrepressible in his breast, in 1632 he ventured on the publication of his work, entitled "The System of the World," its object being to establish the truth of the Copernican doctrine. It is composed in the dialogue form, three speakers being introduced, two of them true philosophers, the third an objector. Whatever may have been the personal opinion of the pope, there can be no doubt that his duty rendered it

He is summoned to Rome.

Is condemned by the Inquisition,

which condemns the Copernican system.

The personal sentiments of the popes,

Galileo publishes "The System of the World."

necessary for him to act. Galileo was therefore again summoned before the Inquisition, the Tuscan ambassador expostulating against the inhumanity of thus dealing with an old man in ill health. But no such considerations were listened to, and Galileo was compelled to appear at Rome, February, 1633, and surrender himself to the Holy Office. The pope's nephew did all in his power to meet the necessity of the Church and yet to spare the dignity of science. He paid every attention to the personal comfort of the accused. When the time came for Galileo to be put into solitary confinement, he endeavored to render the imprisonment as light as possible; but, finding it to prey upon the spirits of the aged philosopher, he, on his own responsibility, liberated him, permitting him to reside in the house of the Tuscan ambassador. The trial being completed, Galileo was directed to appear, on June 22, to hear is again condemned by the Inquisition. his sentence. Clothed in the penitential garment, he received judgment. His heretical offenses were specified, the pledges he had violated recited; he was declared to have brought upon himself strong suspicions of heresy, and to be liable to the penalties thereof; but from these he might be absolved if, with a sincere heart, he would abjure and curse his heresies. However, that his offenses might not altogether go unpunished, and that he might be a warning to others, he was condemned to imprisonment during the pleasure of the Inquisition, his dialogues were prohibited by public edict, and for three years he was directed to recite, once a week, the seven penitential psalms.

In his garment of disgrace the aged philosopher was now made to fall upon his knees before the assembled cardinals, and, with his His degradation and punishment. hand on the Gospels, to make the required abjuration of the heliocentric doctrine, and to give the pledges demanded. He was then committed to the prison of the Inquisition; the persons who had been concerned in the printing of his book were punished; and the sentence and abjuration were formally promulgated, and ordered to be publicly read in the universities. In Florence, the adherents of Galileo were ordered to attend in the Church of Santa Croce to witness his disgrace. After a short imprisonment in the jail of the Inquisition, he was ordered to Arcetri, and confined in his own house. Here severe misfortunes awaited him; his favorite daughter died; he fell into a state of melancholy; an application that he might go to Florence for the sake of medical advice was refused. It became evident that there was an intention to treat him with inexorable severity. After five years of confinement, permission was reluctantly accorded to him to remove to Florence for his health; but still he was forbidden to leave his house, or receive his friends, or even to attend mass during Passion Week without a special order. The grand-duke tried to abate this excessive severity, directing his ambassador at rt of Rome to plead the venerable age and ill health of the philosopher, and that it was desirable to

permit him to communicate certain scientific discoveries he had made to some other person, such as Father Castelli. Not even that was accorded unless the interview took place in the presence of an official of the Inquisition. Soon after Galileo was remanded to Arcetri. He spent the weary hours in composing his work on Local Motion, his friends causing it to be surreptitiously published in Holland. His infirmities and misfortunes now increased. In 1637 he became totally blind. In a letter he plaintively says, referring to this calamity, "So it pleases God, it shall therefore please me also." The exquisite refinement of ecclesiastical vengeance pursued him remorselessly, and now gave him permission to see his friends when sight was no longer possible. It was at this period that an illustrious stranger, the author of *Paradise Lost*, visited him. Shortly after he became totally deaf; but to the last he occupied himself with investigations respecting the force of percussion. He died, January, 1642, in the seventy-eighth year of his age, the prisoner of the Inquisition. True to its instincts, that infernal institution followed him beyond the grave, disputing his right to make a will, and denying him burial in consecrated ground. The pope also prohibited his friends from raising to him a monument in the church of Santa Croce, in Florence. It was reserved for the nineteenth century to erect a suitable memorial in his honor.

The calamities
of his old age.

His death; is
refused burial.

The result of the discoveries of Copernicus and Galileo was thus to bring the earth to her real position of subordination and to give sublimer views of the universe. Mœstlin expresses correctly the state of the case when he says, "What is the earth and the ambient air with respect to the immensity of space? It is a point, a punctule, or something, if there be any thing, less." It had been brought down to the condition of one of the members of a family—the solar system. And since it could be no longer regarded as holding all other bodies in submissive attendance upon it, dominating over their movements, there was reason to suppose that it would be found to maintain interconnections with them in the attitude of an equal or subordinate; in other words, that general relations would be discovered expressive of the manner in which all the planetary members of the solar system sustain their movements round the sun.

Steady advance
of the Coperni-
can system.

Among those whose minds were thoroughly occupied with this idea, Kepler stands pre-eminently conspicuous. It is not at all surprising, considering the mode of thought of those times, that he regarded his subject with a certain mysticism. They who condemn his manner of thus viewing things do not duly appreciate the mental condition of the generation in which he lived. Whatever may be said on that point, no one can deny him a marvelous patience, an almost superhuman painstaking disposition. Guess after guess, hypoth-

Kepler, his mode
of inquiry.

esis after hypothesis, he submitted to computations of infinite labor, and doubtless he speaks the melancholy truth when he says, "I considered and reflected till I was almost mad." Yet, in the midst of repeated disappointment, he held, with a truly philosophical determination, firmly to the belief that there must be some physical interconnection among the parts of the solar system, and that it would certainly be displayed by the discovery of laws presiding over the distances, times, and velocities of the planets. In these speculations he was immersed before the publications of Galileo. In his "*Mysterium Cosmographicum*" he says, "In the year 1595 I was brooding with the whole energy of my mind on the subject of the Copernican system."

In 1609 he published his work entitled "On the Motion of Mars." Discovery of Kepler's laws. This was the result of an attempt, upon which he had been engaged since the beginning of the century, to reconcile the motions of that planet to the hypothesis of eccentrics and epicycles. It ended in the abandonment of that hypothesis, and in the discovery of the two great laws now known as the first and second laws of Kepler. They are respectively that the orbits of the planets are elliptical, and that the areas described by a line drawn from the planet to the sun are proportional to the times.

In 1617 he was again rewarded by the discovery which passes under the designation of Kepler's third law: it expresses the relation of the mean distances of the planets from the sun with the times of their revolutions—"the squares of the periodic times are in the same proportion as the cubes of the distances." In his "*Epitome of the Copernican Astronomy*," published 1622, he showed that this law likewise holds good for the satellites of Jupiter as regards their primary.

Humboldt, referring to the movement of Jupiter's satellites, remarks: His remonstrance with the Church. "It was this which led Kepler, in his '*Harmonices Mundi*,' to state, with the firm confidence and security of a German spirit of philosophical independence, to those whose opinions bore sway beyond the Alps, 'Eighty years have elapsed during which the doctrines of Copernicus regarding the movement of the earth and the immobility of the sun have been promulgated without hinderance, because it was deemed allowable to dispute concerning natural things and to elucidate the works of God, and, now that new testimony is discovered in proof of the truth of those doctrines—testimony which was not known to the spiritual judges, ye would prohibit the promulgation of the true system of the structure of the universe.'"

Thus we see that the heliocentric theory, as proposed by Copernicus, Rectification of the Copernican theory. was undergoing rectification. The circular movements admitted into it, and which had burdened it with infinite perplexity, though they had hitherto been recommended by an illusive simplicity, were demonstrated to be incorrect. They were replaced by the real

ones, the elliptical. Kepler, as was his custom, ingenuously related his trials and disappointments. Alluding on one occasion to this, he says: "My first error was that the path of a planet is a perfect circle—an opinion which was a more mischievous thief of my time, in proportion as it was supported by the authority of all philosophers, and apparently agreeable to metaphysics."

The philosophical significance of Kepler's discoveries was not recognized by the ecclesiastical party at first. It is chiefly this, The philosophical import of these laws, that they constitute a most important step to the establishment of the doctrine of the government of the world by law. But it was impossible to receive these laws without seeking for their cause. The result to which that search eventually conducted not only explained their origin, but also showed that, as laws, they must, in the necessity of nature, exist. It may be truly said that the mathematical exposition of their origin constitutes the most splendid monument existing of the intellectual power of man.

Before the heliocentric theory could be developed and made to furnish a clear exposition of the solar system, which is obviously the first step to just views of the universe, it was necessary that the science of mechanics should be greatly improved—indeed, it might be Necessity for mechanical science. said; for during those dreary ages following the establishment of Byzantine power, nothing had been done toward the acquisition of correct views either in statics or dynamics. It was impossible that Europe, in her lower states of life, could produce men capable of commencing where Archimedes had left off. She had to wait for the approach of her Age of Reason for that.

The man of capacity at last came. Leonardo da Vinci was born A.D. 1452. The historian Hallam, enumerating some of his works, Leonardo da Vinci. observes, "His knowledge was almost preternatural." Many of his writings still remain unpublished. Long before Bacon, he laid down the maxim that experience and observation must be the foundation of all reasoning in science; that experiment is the only interpreter of nature, and is essential to the ascertainment of laws. Unlike Bacon, who was ignorant of mathematics, and even disparaged them, he points out their supreme advantage. Seven years after the voyage of Columbus, this great man—great at once as an artist, mathematician, and engineer—gave a clear exposition of the theory of forces obliquely applied on a lever; a few years later he was well acquainted with the earth's annual motion. He knew the laws of friction, subsequently demonstrated by Amontons, and the principle of virtual velocities; he described the camera obscura before Baptista Porta, understood aerial perspective, the nature of colored shadows, the use of the iris, and the effects of the duration of visible impressions on the eye. He wrote well on fortification, anticipated Castelli on hydraulics, occupied himself with the fall of

bodies on the hypothesis of the earth's rotation, treated of the times of descent along inclined planes and circular arcs, and of the nature of machines. He considered, with singular clearness, respiration and combustion, and foreshadowed one of the great hypotheses of geology, the elevation of continents.

This was the commencement of the movement in Natural Philosophy; it was followed up by the publication of a work on the principles of equilibrium by Stevinus, 1586. In this the author established the fundamental property of the inclined plane, and solved, in a general manner, the cases of forces acting obliquely. Six years later Galileo's treatise on Mechanics appeared, a fitting commencement of that career which, even had it not been adorned with such brilliant astronomical discoveries, would alone have conferred the most illustrious distinction upon him.

The dynamical branch of Mechanics is that which is under most obligation to Galileo. To him is due the establishment of the three laws of motion. They are to the following effect, as given by Newton:

(1.) Every body perseveres in its state of rest or of uniform motion in a right line unless it is compelled to change that state by forces impressed thereon.

(2.) The alteration of motion is ever proportional to the motive force impressed, and is made in the direction of the right line in which that force is impressed.

(3.) To every action there is always opposed an equal reaction, or the mutual actions of two bodies upon each other are always equal, and directed to contrary parts.

Up to this time it was the general idea that motion can only be maintained by a perpetual application, impression, or expenditure of force. Galileo himself for many years entertained that error, but in 1638 he plainly states in his "Dialogues on Mechanics" the true law of the uniformity and perpetuity of motion. Such a view necessarily implies a correct and clear appreciation of the nature of resistances. No experimental motion that man can establish is unrestrained. But a perception of the uniformity and perpetuity of motion lies at the very basis of physical astronomy. With difficulty the true idea was attained to. The same may be said as respects rectilinear direction, for many supposed that uniform motion can only take place in a circle.

The establishment of the first law of motion was essential to the discovery of the laws of falling bodies, in which the descent is made under the influence of a continually acting force, the velocity increasing in consequence thereof. Galileo saw clearly that, whether a body is moving slowly or swiftly, it will be equally affected by gravity. This principle was with difficulty admitted by some, who

Stevinus continues the movement in Natural Philosophy.

Discovery of the laws of motion.

Establishment of the first law of motion.

were disposed to believe that a swiftly moving body would not be as much affected by a constant force like gravity as one the motion of which is slower. With difficulty, also, was the old Aristotelian error eradicated that a heavy body falls more swiftly than a light one.

The second law of motion was also established and illustrated by Galileo. In his "Dialogues" he shows that a body projected horizontally must have, from what has been said, a uniform horizontal motion, but that it will also have compounded therewith an accelerated motion downward. Here again we perceive it is necessary to retain a steady conception of this intermingling of forces without deterioration, and, though it may seem simple enough to us, there were some eminent men of those times who did not receive it as true. The special case offered by Galileo is theoretically connected with the paths of military projectiles, though in practice, since they move in a resisting medium, the air, their path is essentially different from the parabola. Curvilinear motions, which necessarily arise from the constant action of a central force, making a body depart from the rectilinear path it must otherwise take, are chiefly of interest, as we shall presently find, in the movements of the celestial bodies.

A thorough exposition of the third law of motion was left by Galileo to his successors, who had directed their attention especially to the determination of the laws of impact. Indeed, the whole subject was illustrated and the truth of the three laws verified in many different cases by an examination of the phenomena of freely falling bodies, pendulums, projectiles, and the like. Among those who occupied themselves with such labors may be mentioned Torricelli, Castelli, Viviani, Borelli, Gassendi. Through the investigations of these, and other Italian, French, and English natural philosophers, the principles of Mechanics were solidly established, and a necessary preparation made for their application in astronomy. By this time every one had become ready to admit that the motion of the planetary bodies would find an explanation on these principles.

The steps thus far taken for an explanation of the movements of the planets in curvilinear paths therefore consisted in the removal of the old misconception that for a body to continue its motion forward in a straight line a continued application of force is necessary, the first law of motion disposing of that error. In the next place, it was necessary that clear and distinct ideas should be held of the combination or composition of forces, each continuing to exercise its influence without deterioration or diminution by the other. The time had now come for it to be shown that the perpetual movement of the planets is a consequence of the first law of motion; their elliptic paths, such as had been determined by Kepler, a consequence of the second. Several persons almost simultaneously had been brought

and of the second,

and of the third.

Application of Mechanics to the celestial motions.

nearly to this conclusion without being able to solve the problem completely. Thus Borelli, A.D. 1666, in treating of the motions of Jupiter's satellites, distinctly shows how a circular motion may arise under the influence of a central force; he even uses the illustration so frequently introduced of a stone whirled round in a sling. In the same year a paper was presented to the Royal Society by Mr. Hooke "explicating the inflection of a direct motion into a circular by a supervening attractive principle." Huygens also, in his "*Horologium Oscillatorium*," had published some theorems on circular motions, but no one as yet had been able to show how elliptical orbits could, upon these principles, be accounted for, though very many had become satisfied that the solution of this problem would before long be given.

In April, 1686, the *Principia* of Newton was presented to the Royal Society. This immortal work not only laid the foundation of Physical Astronomy, it also carried the structure thereof very far toward its completion. It unfolded the mechanical theory of universal gravitation upon the principle that all bodies tend to approach each other with forces directly as their masses, and inversely as the squares of their distances.

To the force producing this tendency of bodies to approach each other the designation of attraction of gravitation, or gravity, is given. All heavy bodies fall to the earth in such a way that the direction of their movement is toward its centre. Newton proved that this is the direction in which they must necessarily move under the influence of an attraction of every one of the particles of which the earth is composed, the attraction of a sphere taking effect as if all its particles were concentrated in its centre.

Galileo had already examined the manner in which gravity acts upon bodies as an accelerating force, and had determined the connection between the spaces of descent and the times. He illustrated such facts experimentally by the use of inclined planes, by the aid of which the velocity may be conveniently diminished without otherwise changing the nature of the result. He had also demonstrated that the earth's attraction acts equally on all bodies. This he proved by inclosing various substances in hollow spheres, and showing that, when they were suspended by strings of equal length and made to vibrate, the time of oscillation was the same for all. Upon the invention of the air-pump, a more popular demonstration of the same fact was given by the experiment proving that a gold coin and a feather fall equally swiftly in an exhausted receiver. Galileo had also proved, by experiments on the leaning tower of Pisa, that the velocity of falling bodies is independent of their weight. It was for these experiments that he was expelled from that city.

Up to the time of Newton there were only very vague ideas that the

Newton; publication of the *Principia*.

Propounds the theory of universal gravitation.

Preparation for Newton.

earth's attraction extended to any considerable distance. Newton was led to his discovery by reflecting that at all altitudes accessible to man gravity appears to be undiminished, and that, therefore, it may possibly extend as far as the moon, and actually be the force which deflects her from a rectilinear path, and makes her revolve in an orbit round the earth. Admitting the truth of the law of the inverse squares, it is easy to compute whether the moon falls from the tangent she would describe if the earth ceased to act upon her by a quantity proportional to that observed in the case of bodies falling near the surface. In the first calculations made by Newton, he found that the moon is deflected from the tangent thirteen feet every minute; but, if the hypothesis of gravitation was true, her deflection should be fifteen feet. It is no trifling evidence of the scrupulous science of this great philosopher that hereupon he put aside the subject for several years, without, however, abandoning it. At length, in 1682, learning the result of the measures of a degree which Picart had executed in France, and which affected the estimate of the magnitude of the earth which he had used, and therefore the distance of the moon, he repeated the calculations with these improved data. It is related that "he went home, took out his old papers, and resumed his calculations. As they drew to a close, he became so much agitated that he was obliged to desire a friend to finish them." The expected coincidence was verified. And thus it appeared that the moon is retained in her orbit and made to revolve round the earth by the force of terrestrial gravity.

These calculations were founded upon the hypothesis that the moon moves in a circular orbit with a uniform velocity. But in the *Principia* it was demonstrated that when a body moves under the influence of an attractive force, varying as the inverse squares of the distances, it must describe a conic section, with a focus at the centre of force, and under the circumstances designated by Kepler's laws. Newton, therefore, did far more than furnish the expected solution of the problem of elliptical motion, and it was now apparent that the existence of those laws might have been foreseen, since they arise in the very necessities of the case.

This point gained, it is obvious that the evidence was becoming unquestionable, that as the moon is made to revolve round the earth through the influence of an attractive force exercised by the earth, so likewise each of the planets is compelled to move in an elliptical orbit round the sun by his attractive force. The heliocentric theory, at this stage, was presenting physical evidence of its truth. It was also becoming plain that the force we call gravitation must be imputed to the sun, and to all the planetary bodies as well as to the earth. Accordingly, this was what Newton asserted in respect to all material substance.

Extension of
attraction or
gravity.

The cause of
Kepler's laws.

Resistless spread
of the heliocen-
tric theory.

But it is a necessary consequence of this theory that many apparent irregularities and perturbations of the bodies of the solar system must take place by reason of the attraction of each upon all the others. If there were but one planet revolving round the sun, its orbit might be a mathematically perfect ellipse; but the moment a second is introduced, perturbation takes place in a variable manner as the bodies change their positions or distances. An excessive complication must therefore be the consequence when the number of bodies is great. Indeed, so insurmountable would these difficulties be, that the mathematical solution of the general problem of the solar system would be hopeless were it not for the fact that the planetary bodies are at very great distances from one another, and their masses, compared with the mass of the sun, very small.

Taking the theory of gravitation in its universal acceptation, Newton, in a manner that looks as if he were divinely inspired, succeeded in demonstrating the chief inequalities of the moon and planetary bodies; in determining the figure of the earth—that it is not a perfect sphere, but an oblate spheroid; in explaining the precession of the equinoxes and the tides of the ocean. To such perfection have succeeding mathematicians brought the doctrine, that the most complicated movements and irregularities of the solar system have been satisfactorily accounted for and reduced to computation. Trusting to these principles, not only has it been found possible, knowing the mass of a given planet, to determine the perturbations it may produce in adjacent ones, but even the inverse problem has been successfully attacked, and from the perturbations the place and mass of a hitherto unknown planet determined. It was thus that, from the deviations of Uranus from his theoretical place, the necessary existence of an exterior disturbing planet was foreseen, and our times have witnessed the intellectual triumph of geometers directing where the telescope should point in order to find a new planet. The discovery of Neptune was thus accomplished.

It adds to our admiration of the wonderful intellectual powers of Newton to know that the mathematical instrument he used was the ancient geometry. Not until subsequently was the analytical method resorted to and cultivated. This method possesses the inappreciable advantage of relieving us from the mental strain which would otherwise oppress us. It has been truly said that the symbols think for us. Mr. Whewell, looking at the thing from this point of view, observes: "No one for sixty years after the publication of the *Principia*, and, with Newton's methods, no one up to the present day, has added any thing of value to his calculations. We know that he calculated all the principal lunar motions in many of the cases he has given us his processes. But who has present-

Perturbations
accounted for.

Results of the
theory of grav-
itation.

The *Principia*;
its incompara-
ble merit.

ed in his beautiful geometry or deduced from his simple principles any of the inequalities which he left untouched? The ponderous instrument of synthesis, so effective in his hands, has never since been grasped by any one who could use it for such purposes; and we gaze at it with admiring curiosity, as on some gigantic implement of war which stands idle among the memorials of ancient days, and makes us wonder what manner of man he was who could wield as a weapon what we can hardly lift as a burden."

Such was the physical meaning of Newton's discoveries; their philosophical meaning was of even greater importance. The paramount truth was resistlessly coming into prominence—that the government of the solar system is under necessity, and that it is mathematically impossible for the laws presiding over it to be other than they are.

Thus it appears that the law of gravitation holds good throughout our solar system. But the heliocentric theory, in its most general acceptance, considers every fixed star as being, like the sun, a planetary centre. Hence, before it can be asserted that the theory of gravitation is truly universal, it must be shown that it holds good in the case of all such other systems. The evidence offered in proof of this is altogether based upon the observations of the two Herschels on the motions of the double stars. Among the stars there are some in such close proximity to each other that Sir W. Herschel was led to suppose that it would be possible, from observations upon them, to ascertain the stellar parallax. While engaged in these inquiries, which occupied him for many years, he discovered that many of these stars are not merely optically in proximity, as being accidentally in the same line of view, but are actually connected physically, revolving round each other in regular orbits. The motion of these double suns is, however, in many instances so slow as to require many years for a satisfactory determination. Sir J. Herschel therefore continued the observations of his father, and, with other mathematicians, investigated the characteristics of these motions. The first instance in which the true elliptic elements of the orbit of a binary star were determined was given by M. Savary in the case of ξ Ursæ Majoris, indicating an elliptic orbit of 58½ years. But the period of others, since determined, is very much longer; thus, in σ Coronæ, it is, according to Mr. Hind, more than 736 years. From the fact that the orbits in which these stars move round each other are elliptical, it necessarily follows that the law of gravitation, according to the inverse square, holds good in them. Considering the prodigious distances of these bodies, and the departure, as regards structure of the systems to which they belong, from the conditions obtaining in our unsolar system, we may perhaps assert the prevalence of the law of gravitation throughout the universe.

Philosophical
Import of New-
ton's discov-
eries.

Unity of idea in
the construction
of the universe.

Gravitation of
double stars.

If, in association with these double suns—sometimes, indeed, they are triple, and occasionally, as in the case of ϵ Lyrae, quadruple—there are opaque planetary globes, such solar systems differ from ours not only in having several suns instead of a single one, but, since the light emitted is often of different tints, one star shining with a crimson and another with a blue light, the colors not always complementary to one another, a wonderful variety of phenomena must be the result, especially in their organic creations; for organic forms, both vegetable and animal, primarily depend on the relations of colored light. How varied the effects where there are double, triple, or even quadruple sunrises, and sunsets, and noons, and the hours marked off by red, or purple, or blue tints!

Colored light of
double stars.

It is impossible to look back on the history of the theory of gravitation without sentiments of admiration, and, indeed, of pride. How felicitous has been the manner in which have been explained the inequalities of a satellite like the moon under the disturbing influence of the sun; the correspondence between the calculated and observed quantities of those inequalities; the extension of the doctrine to satellites of other planets, as those of Jupiter; the determination of the earth's figure; the causes of the tides; the different force of gravity in different latitudes, and a multitude of other phenomena. The theory asserted for itself that authority which belongs to intrinsic truth. It enabled mathematicians to point out facts not yet observed, and to foretell future events.

Grandeur of
Newton's dis-
coveries.

And yet how hard it is for truth to force its way when bigotry resists. In 1771, the University of Salamanca, being urged to teach physical science, refused, and this was its answer: "Newton teaches nothing that would make a good logician or metaphysician; and Gassendi and Descartes do not agree so well with revealed truth as Aristotle does."

Among the interesting results of Newton's theory may be mentioned its application to secular inequalities, such as the acceleration of the moon's mean motion, that satellite moving somewhat quicker now than she did ages ago. Laplace detected the cause of this phenomenon in the influence of the sun upon the moon, combined with the secular variation of the eccentricity of the earth's orbit. Moreover, he showed that this secular inequality of the motion of the moon is periodical, that it requires millions of years to re-establish itself, and that, after an almost inconceivable time, the acceleration becomes a retardation. In like manner, the same mathematician explained the observed acceleration in the mean motion of Jupiter, and retardation of that of Saturn, as arising from the mutual attraction of the two planets, and showed that this secular inequality has a period of 9294 years. With such slow movements may be mentioned the diminution of the obliquity of the ecliptic, which has been going on for ages, but which will reach

The earth in
time.

a limit and then commence to increase. These secular motions ought not to be without interest to those who suffer themselves to adopt the patristic chronology of the world, who suppose that the earth is only six thousand years old, and that it will come to an end in about one thousand years more. They must accept, along with that preposterous delusion, its necessary consequences, that the universe has been so badly constructed, and is such a rickety machine, that it can not hold together long enough for some of its wheels to begin to revolve. Astronomy offers us many illustrations of the scale upon which the world is constructed as to time, as well as that upon which it is constructed as to space.

From what has been said, the conclusion forces itself upon us that the general laws obtaining as respects the earth, hold good like-
Dominion of law in the universe.
 wise for all other parts of the universe; a conclusion sustained not only by the mechanism of such motions as we have been considering, but also by all evidence of a physical kind accessible to us. The circumstances under which our sun emits light and heat, and thereby vivifies his attendant planets, are indisputably the same as those obtaining in the case of every fixed star, each of which is a self-luminous sun. There is thus an aspect of homogeneousness in the structure of all systems in the universe, which, though some have spoken of it as if it were the indication of a uniformity of plan, and therefore the evidence of a primordial idea, is rather to be looked upon as the proof of unchangeable and resistless law.

What, therefore, now becomes of the doctrine authoritatively put forth, and made to hold its sway for so many centuries, that the earth is not only the central body of the universe, but, in reality, the most noble body in it; that the sun and other stars are mere ministers or attendants for human use? In the place of these utterly erroneous and unworthy views, far different conceptions must be substituted. Man, when he looks upon the countless multitude of stars—when he reflects that all he sees are only a little portion of those which exist, yet that each is a light and life-giving sun to multitudes of opaque, and, therefore, invisible worlds—when he considers the enormous size of these various bodies and their immeasurable distance from one another, may form an estimate of the scale of magnitude on which the world is constructed, and learn therefrom his own unspeakable insignificance.

In one beat of a pendulum a ray of light would pass eight times round the circumference of the earth. Thus we may take
Aids for measurements in the universe.
 the sunbeam as a carpenter does his measuring-rule; it serves as a gauge in our measurements of the universe. A sunbeam would require more than three years to reach us from α Centauri; nine and a quarter years from δ Cygni; from α Lyrae twelve years. These are stars whose parallax has been determined, and which are therefore nearest to us.

Of suns visible to the naked eye there are about 8000, but the telescope can discern in the Milky Way more than eighteen millions, the number visible increasing as more powerful instruments are used. Our cluster of stars is a disk divided into two branches at about one third of its length. In the midst of innumerable compeers and superiors, the sun is not far from the place of bifurcation, and at about the middle of the thickness. Outside the plane of the Milky Way the appearance would be like a ring, and, still farther off, a nebulous disk.

From the contemplation of isolated suns and congregated clusters we are led to the stupendous problem of the distribution of matter and force in space, and to the interpretation of those apparent phantoms of self-luminous vapor, circular and elliptic disks, spiral wreaths, rings and fans whose edges fade doubtfully away, twins and triplets of phosphorescent haze connected together by threads of light and grotesque forms of indescribable complexity. Perhaps in some of these gleaming apparitions we see the genesis, in some the melting away of universes. There is nothing motionless in the sky. In every direction vast transformations are occurring, yet all things proclaim the eternity of matter and the undiminished perpetuity of force.

The theory of gravitation, as delivered by Newton, thus leads us to a knowledge of the mathematical construction of the solar system, and inferentially likewise to that of other systems; but it leaves without explanation a large number of singular facts. It explains the existing conditions of equilibrium of the heavenly bodies, but it tells us nothing of their genesis; or, at the best, in that particular it falls back on the simple fiat of God.

The facts here referred to conduct us, however, to another and far higher point of view. Some of them, as enumerated by Laplace, are the following: 1. All the planets and their satellites move in ellipses of such small eccentricity that they are nearly circles; 2. The movements of the planets are in the same direction and nearly in the same plane; 3. The movements of the satellites are in the same direction as those of the planets; 4. The movements of rotation of these various bodies and of the sun are in the same direction as their orbital motions, and in planes little different.

The nebular hypothesis requires us to admit that all the ponderable material now constituting the various bodies of the solar system once extended, in a rarefied or nebulous and rotating condition, beyond the confines of the most distant planet. That postulate granted, the structure and present condition of the system may be mathematically deduced.

For, as the vast rotating spheroid lost its heat by radiation, it contracted, and its velocity of rotation was necessarily increased; and thus were left behind from its equatorial zone, by reason of the centrifugal

force, rotating rings, the same result occurring periodically again and again. These rings must lie all in one plane. They might break, collapsing into one rotating spheroid, a planet; or into many, asteroids; or maintain the ring-like form. From the larger of these secondary rotating spheroids other rings might be thrown off, as from the parent mass; these, in their turn breaking and becoming spheroids, constitute satellites, whose movements correspond to those of their primaries.

We might, indeed, advance a step farther, and show how, by the radiation of heat from a motionless nebula, a movement of rotation in a determinate direction could be engendered, and that upon these principles, the existence of a nebulous matter admitted, and the present laws and forces of nature regarded as having been unchanged, the manner of origin of the solar system might be deduced, and all those singular facts previously alluded to explained; and not only so, but there are spontaneously suggested the cause of many minor peculiarities not yet mentioned.

For it follows from the nebular hypothesis that the large planets should rotate rapidly, and the small ones more slowly; that the outer planets and satellites should be larger than the inner ones. Facts accounted for by it. Of the satellites of Saturn, the largest is the outermost; of those of Jupiter, the largest is the outermost save one. Of the planets themselves, Jupiter is the largest, and outermost save three. These can not be coincidences, but must be due to law. The number of satellites of each planet, with the doubtful exception of Venus, might be foreseen, the presence of satellites and their number being determined by the centrifugal force of their primary. The hypothesis also points out the time of revolution of the planets in their orbits, and of the satellites in theirs; it furnishes a reason for the genesis and existence of Saturn's rings, which are indeed its remaining witnesses—their position and movements answering to its requirements. It accounts for the physical state of the sun, and also for the physical state of the earth and moon as indicated by their geology. It is also not without furnishing reasons for the existence of comets as integrant members of our system; for their singular physical state; for the eccentric, almost parabolic orbits of so many of them; for the fact that there are as many of them with a retrograde as with a direct motion; for their more frequent occurrence about the axis of the solar system than in its plane; and for their general antithetical relations to planets.

If these and very many other apparently disconnected facts follow as the mechanical necessities of the admission of a gravitating nebula—a very simple postulate—it becomes important to ascertain whether, by actual observation, the existence of such material forms may be demonstrated in any part of the universe. Whether nebulae actually exist. It was the actual telescopic observation of such objects that led Herschel to the neb-

ular hypothesis. He concluded that there are two distinct kinds of nebulae, one consisting of clusters of stars so remote that they could not be discerned individually, but that these may be discerned by sufficient telescopic power; the other being of a hazy nature, and incapable of resolution. Nebulae do not occur at random in the heavens: the regions poorest in stars are richest in them; they are few in the plane of our sidereal system, but numerous about its poles, in that respect answering to the occurrence of comets in the solar system. The resolution of many of these hazy patches of light into stars by no means disproves the truly nebulous condition of many others.

Notwithstanding the great authority of the astronomers who introduced it, the nebular hypothesis has encountered much adverse criticism; not so much, however, from its obvious scientific defects, such as its inability to deal with the case of Uranus, as from moral and extraneous considerations. There is a line in Aristophanes which points out precisely the difficulty:

Ὁ Ζεὺς οὐκ ὤν, ἀλλ' ἀντ' αὐτοῦ Δίος νυνὶ βασιλεύων.

A reluctance to acknowledge the presidency of law in the existing constitution and movements of the solar system has been yielded only to be succeeded by a reluctance to acknowledge the presidency of law in its genesis. And yet whoever will reflect on the subject will be drawn to the conclusion that the principle involved was really settled by Newton in his Principia—that is to say, when it became geometrical—certain that Kepler's laws originate in a mathematical necessity.

As matters now stand, the nebular hypothesis may be regarded as the first superficial, and therefore imperfect, glimpse of a series of the grandest problems soon to present themselves for solution—the mathematical distribution of matter and force in space, and the variations of that distribution in time.

Such is the history of the dispute respecting the position of the earth in the universe. Not without reason, therefore, have I assigned the pontificate of Nicolas V. as the true close of the intellectual dominion of the Church. From that period the sceptre had passed into another hand. In all directions Nature was investigated, in all directions new methods of examination were yielding unexpected and beautiful results. On the ruins of its ivy-grown cathedrals, Ecclesiasticism, surprised and blinded by the breaking day, sat solemnly blinking at the light and life about it, absorbed in the recollection of the night that had passed, dreaming of new phantoms and delusions in its wished-for return, and vindictively striking its talons at any derisive assailant who incautiously approached too near. I have not space to describe the scientific activity displayed in all directions; to do it justice would demand volumes. Mathematics, physics, chemistry, anatomy, medicine,

The intellectual ruin of ecclesiasticism.

and all the many branches of human knowledge received an impulse. Simultaneously with the great events I have been relating, every one of these branches was advancing. Vieta made the capital improvement of using letters as general symbols in algebra, and applied that science to geometry. Tycho, emulating Hipparchus of old, made a new catalogue of the stars; he determined that comets are beyond the moon, and that they cut the crystalline firmament of theology in all directions. Gilbert wrote his admirable book on the magnet; Gesner led the way to zoology, taking it up at the point to which the Saracens had continued Aristotle, by the publication of his work on the history of animals; Belon at the same time, 1540, was occupied with fishes and birds. Fallopius and Eustachius, Arantius and Varolius, were immortalizing themselves by their dissections: the former reminding us of the times of Ptolemy Philadelphus, when he naïvely confesses "the Duke of Tuscany was obliging enough to send living criminals to us, whom we killed and then dissected." Piccolomini laid the foundations of general anatomy by his description of cellular tissue. Coiter created pathological anatomy, Prosper Alpinus diagnosis, Plater the classification of disease, and Ambrose Paré modern surgery. Such were the occupations and prospect of science at the close of the sixteenth century.

Scarcely had the seventeenth opened when it became obvious that the movement, far from slackening, was only gathering force. It was the age of Galileo. Descartes introduced the theory of an ether and vortices; but, hearing of the troubles that had befallen Galileo, was on the point of burning his papers. Several years later, he was restrained from publishing his *Cosmos* "from a pious desire not to treat irreverently the decrees of the holy chair against the planetary movement of the earth." This was in 1633, when the report of the sentence of the Inquisition was made known. He also developed Vieta's idea of the application of algebra to geometry, and brought into prominence the mechanical fact, destined to an important application in physical astronomy, that every curvilinear deflection is due to a controlling force. To him, among Europeans, also is to be attributed the true explanation of the rise of water in an exhausted space—"the weight of the water counterbalances that of the air." Napier perfected his great and useful invention of logarithms. Hydraulics was created by Castelli; hydrostatics by Torricelli, who also discovered barometric variations: both were pupils of Galileo. Fabricius ab Aquapendente discovered the valves in the veins, Servetus almost detected the course of the circulation. Harvey completed what Servetus had left unfinished, and described the entire course of the blood; Asellius discovered the lacteals; Van Helmont introduced the theory of vitality into medicine, and made the practice or art thereof consist in regulating by diet the *archeus*, whose seat he affirmed to be in the stomach. In strong contrast with

Wonderful development of scientific activity.

The movement becomes still more vigorous.

this phantasy, Sanctorio laid the foundation of modern physiology by introducing the balance into its inquiries. Pascal, by a decisive experiment, established the doctrines of the weight and pressure of the air, and published some of the most philosophical treatises of the age: "his Provincial Letters did more than any thing to ruin the name of the Jesuits." The contagion spread to the lawyers: in 1672 appeared Puffendorf's work on the Law of Nature and Nations. The phlogistic theory, introduced by Beccher and perfected by Stahl, created chemistry, in contradistinction to the Arabian alchemy. Otto Guericke invented the air-pump, Boyle improved it; Hooke, among many other discoveries, determined the essential conditions of combustion. Far above all contemporaries in mathematical learning and experimental skill, Newton was already turning his attention to the "reflections, refractions, inflections, and colors of light," and introducing the idea of attractions into physics. Ray led the way to comparative anatomy in his synopsis of quadrupeds; Swammerdam improved the art of dissection, applying it to the general history of insects; Lister published his synopsis of shells; Tournefort and Malpighi devoted themselves to botany; Grew discovered the sexes of plants, Brown the quinary arrangement of flowers. Geology began to shake loose from the trammels of theology, and Burnet's Sacred theory of the Earth could not maintain its ground against more critical investigations. The Arabian doctrine of the movement of the crust of the earth began to find supporters. Lister ascertained the continuity of strata over great distances; Woodward improved mineralogy; the great mathematician, Leibnitz, the rival of Newton, propounded the doctrine of the gradual cooling of the globe, the descent of its strata by fracture, the deposit of sedimentary rocks, and their induration. Among physicians, Willis devoted himself to the study of the brain, traced the course of the nerves and classified them, and introduced the doctrine of the localization of functions in the brain. Malpighi and Lewenhoeek applied the microscope as an aid to anatomy; the latter discovered spermatozoa. Graaf studied the function of the generative organs; Borelli attempted the application of mathematics to muscular movement; Duvorney wrote on the sense of hearing, Mayow on respiration; Ruysch perfected the art of injection, and improved minute anatomy—

But it is in vain to go on. The rest of these pages would be consumed in an attempt to record the names of the cultivators of science, every year increasing in number, and to do justice to their works. From the darkness that had for so many ages enveloped it, the human mind at last emerged into light. The intellectual motes were dancing in the sunbeam, and making it visible in every direction.

Despairing thus to do justice to individual philosophers and individual discoveries, however, one most important event we allude to. It is the foundation of

learned societies. Imitating the examples of the *Academia Secretorum Naturæ*, instituted at Naples, 1560, by Baptista Porta, and of the *Lyncean Academy*, founded 1603 by Prince Frederick Cesi at Rome for the promotion of natural philosophy, the *Accademia del Cimento* was established at Florence, 1637; the *Royal Society of London*, 1645; and the *Royal Academy of Sciences in Paris*, 1666.

Arrived at the close of the description of this first great victory of scientific truth over authority and tradition, it is well for us to pause and look back on the progress of man from the erroneous inferences of his social infancy to the true conclusions of his maturity—from anthropocentric ideas, which in all nations and parts of the world have ever been the same, to the discovery of his true position and insignificance in the universe.

We are placed in a world surrounded with illusions. The daily events of our life and the objects before us tend equally to deceive us. If we cast our eyes on the earth, it seems to be made only to minister to our pleasures or our wants. If we direct our attention to the sky, that blue and crystalline dome, the edges of which rest on the flat land or the sea—a glacial vault, which Empedocles thought was frozen air, and the fathers of the Church the lowest of the seven concentric strata of heavens—we find a thousand reasons for believing that whatever it covers was intended by some Good Being for our use. Of the various living things placed with us beneath it, all are of an inferior grade when compared with ourselves, and all seem intended for us. The conclusions at which we thus arrive are strengthened by a principle of vanity implanted in our hearts, unceasingly suggesting to us that this pleasant abode must have been prepared for our reception, and furnished and ornamented expressly for our use.

But reflection teaches us that we came not hither of ourselves, and that doubtless the same Good Being who prepared this delightful abode brought us as tenants into it. From the fact of our own existence, we are insensibly and inevitably led to infer the existence of God; from the favorable circumstances in which our lot is cast, we gather evidences of his goodness; and in the energy which natural phenomena often display, we see the tokens of his power. What other explanation can we give of tempests in the sea or lightning in the heavens? Moreover, it is only during a part of our time—our waking hours—that we are brought in relation with these material things; for the rest, when we are asleep, a state in which we spend more than a third part of our life, we are introduced to other scenery, other beings, another world. From these we gather that there are agents of an intangible and more ethereal mould, perhaps of the nature of Him who brought us here, perhaps his subordinates and messen-

Review of anthropocentric philosophy.

The sky, apparent nature of.

Anthropocentric ideas of God.

Of the world and heaven.

gers. Whence do they issue and whither do they go? Is there not beyond the sky above us a region to which our imperfect vision can not penetrate, but which may be accessible to them from the peaks of elevated mountains, or to be reached only with wings? And thus we picture to ourselves a heaven shut off from earth, with all its sins and cares, by the untroubled and impenetrable sky—a place of light and repose, its pavement illuminated by the sun and countless other shining bodies—a place of peace, but also a place of power.

Still more, a thousand facts of our life teach us that we are exposed to influences of an evil nature as well as to those that are good. How often, in our dreams, does it happen that we are terror-stricken by the approach of hideous forms, faces of fearful appearance, from which we vainly struggle to escape. Is it not natural for us to attribute the evil we see in the world to these as the good to those? and, since we can not conceive of the existence of beings without assigning them a place, where shall we find for these malignant spirits a habitation? Is it not in the dark region beneath the ground, far away from the realms of light—a region from which, through the volcano, smoke and burning sulphur are cast into this upper world—a place of everlasting fire and darkness, whose portals are in caves and solitudes of unutterable gloom?

Placed thus on the boundary between such opposing powers, man is the sport of circumstances, sustained by beings who seek his happiness, and tempted by those who desire his destruction. Is it at all surprising that, guided by such obvious thoughts and simple reasonings, he becomes superstitious? that he sees in every shadow a spirit, and peoples every solitary place with invisibles? that he casts a longing look to the good beings who can protect him, seeking to invoke their aid by entreaties, and to propitiate their help by free-will sacrifices of things that are pleasant and valuable? Open to such influences himself, why should he not believe in the efficacy of prayer? His conscious superiority lends force to his suspicion that he is a worthy object for the opposing powers to contend for, a conclusion verified by the inward strifes he feels, as well as by the trials of life to which he is exposed.

But dreams at night, and sometimes visions by day, serve to enforce the conclusion that life is not limited to our transitory continuance here, but endures hereafter. How often at night do we see the well-known forms of those who have been dead a long time appearing before us with surprising vividness, and hear their almost forgotten voices? These visions full of the most solemn suggestions, profound that the dead still continue to exist, and that what must also happen to us, and we too are destined voluntarily we asso-

ciate these conclusions with others, expecting that in a future life good men will enjoy the society of good beings like themselves, the evil being dismissed to the realms of darkness and despair. And, as human experience teaches us that a final allotment can only be made by some superior power, we expect that He who was our Creator shall also be our Judge; that there is an appointed time and a bar at which the final destination of all who have lived shall be ascertained, and eternal justice measure out its punishments and rewards.

From these considerations there arises an inducement for us to lead a virtuous life, abstaining from wickedness and wrong; to set apart a body of men who may mediate for us, and teach us by precept and example the course it is best for us to pursue; to consecrate places, such as groves or temples, to which we may resort, as the more immediate habitations of the Deity.

Such are the leading doctrines of Natural Theology of primitive man both in the old and new continent. They arise from the operations of the human mind considering the fitness of things.

Just as we have in Comparative Anatomy the structure of different animals examined, and their identities and differences set forth, thereby establishing their true relations; just as we have in Comparative Physiology the functions of one organic being compared with those of another, to the end that we may therefrom deduce their proper connections, so, from the mythologies of various races of men, a Comparative Theology is to be constructed. Alone through such a science can correct conclusions be arrived at respecting this, the most important of the intellectual operations of man—the definite process of his religious opinions. But it must be borne in mind that Comparative Theology illustrates the result or effect of the phase of life, and is not its cause.

As man advances in knowledge he discovers that of his primitive conclusions some are doubtless erroneous, and many require better evidence to establish their truth incontestably. A more prolonged and attentive examination gives him reason, in some of the most important particulars, to change his mind. He finds that the earth on which he lives is not a floor covered over with a starry dome, as he once supposed, but a globe self-balanced in space. The crystalline vault, or sky, is recognized as an optical deception. It rests upon the earth nowhere, and is no boundary at all; there is no kingdom of happiness above it, but a limitless space, adorned with planets and suns. Instead of a realm of darkness and woe in the depths on the other side of the earth, men like ourselves are found there, pursuing, in Australia and New Zealand, the innocent pleasures and encountering the ordinary labors of life. By the aid of such lights as knowledge gradually supplies, he comes at last to discover that this, our terrestrial habitation, in-

stead of being a chosen, a sacred spot, is only one of similar myriads, more numerous than the sands of the sea, and prodigally scattered through space.

Never, perhaps, was a more important truth discovered. All the visible evidence was in direct opposition to it. The earth, which had hitherto seemed to be the very emblem of immobility, was demonstrated to be carried with a double motion, with prodigious velocity, through the heavens; the rising and setting of the stars were proved to be an illusion; and, as respects the size of the globe, it was shown to be altogether insignificant when compared with multitudes of other neighboring ones — insignificant doubly by reason of its actual dimensions, and by the countless numbers of others like it in form, and doubtless, like it, the abodes of many orders of life.

And so it turns out that our earth is a globe of about twenty-five thousand miles in circumference. The voyager who circumnavigates it spends no inconsiderable portion of his life in accomplishing his task. It moves round the sun in a year, but at so great a distance from that luminary that, if seen from him, it would look like a little spark traversing the sky. It is thus recognized as one of the members of the solar system. Other similar bodies, some of which are of larger, some of smaller dimensions, perform similar revolutions round the sun in appropriate periods of time.

If the magnitude of the earth is too great for us to attach to it any definite conception, what shall we say of the compass of the solar system? There is a defect in the human intellect which incapacitates us for comprehending distances and periods that are either too colossal or too minute. We gain no clearer insight into the matter when we are told that a comet which does not pass beyond the bounds of the system may perhaps be absent on its journey for more than a thousand years. Distances and periods such as these are beyond our grasp. They prove to us how far human reason excels imagination, the one measuring and comparing things of which the other can form no conception, but in the attempt is utterly bewildered and lost.

But as there are other globes like our earth, so too there are other worlds like our solar system. There are self-luminous suns exceeding in number all computation. The dimensions of this earth pass into nothingness in comparison with the dimensions of the solar system, and that system, in its turn, is only an invisible point if placed in relation with the countless hosts of other systems which form, with it, clusters of stars. Our solar system, far from being alone in the universe, is only one of an immense brotherhood, bound by common laws and subject to common laws. Even on the very verge of creation, where imagination begins the realms of chaos,

we see unbounded proofs of order, a regularity in the arrangement of inanimate things, suggesting to us that there are other intellectual creatures like us, the tenants of those islands in the abysses of space.

Though it may take a beam of light a million of years to bring to our view those distant worlds, the end is not yet. Far away in the depths of space we catch the faint gleams of other groups of stars like our own. The finger of a man can hide them in their remoteness. Their vast distances from one another have dwindled into nothing. They and their movements have lost all individuality; the innumerable suns of which they are composed blend all their collected light into one pale milky glow.

Thus extending our view from the earth to the solar system, from the solar system to the expanse of the group of stars to which we belong, we behold a series of gigantic nebular creations ^{Insignificance of man.} rising up one after another, and forming greater and greater colonies of worlds. No numbers can express them, for they make the firmament a haze of stars. Uniformity, even though it be the uniformity of magnificence, tires at last, and we abandon the survey, for our eyes can only behold a boundless prospect, and conscience tells us our own unspeakable insignificance.

But what has become of the time-honored doctrine of the human destiny of the universe? that doctrine for the sake of which the controversy I have described in this chapter was raised. It ^{Triumph of scientific truth.} has disappeared. In vain was Bruno burnt and Galileo imprisoned; the truth forced its way, in spite of all opposition, at last. The end of the conflict was a total rejection of authority and tradition, and the adoption of scientific truth.

CHAPTER XXIII.

THE EUROPEAN AGE OF REASON—(Continued).

HISTORY OF THE EARTH.—HER SUCCESSIVE CHANGES IN THE COURSE OF TIME.

Oriental and Occidental Doctrines respecting the Earth in Time.—Gradual Weakening of the Latter by astronomical Facts, and the Rise of Scientific Geology.

Impersonal Manner in which the Problem was eventually solved, chiefly through Facts connected with Heat.

Proofs of limitless Duration from inorganic Facts.—Igneous and Aqueous Rocks.

Proofs of the same from organic Facts.—Successive Creations and Extinctions of living Forms, and their contemporaneous Distribution.

Evidences of a slowly declining Temperature, and, therefore, of a long Time.—The Process of Events by Catastrophe and by Law.—Analogy of Individual and Race Development.—Both are determined by unchangeable Law.

Conclusion that the Plan of the Universe indicates a Multiplicity of Worlds in infinite Space, and a Succession of Worlds in infinite Time.

A VICTORY could not be more complete nor a triumph more brilliant than that which had been gained by science in the contest concerning the position of the earth. Though there followed closely thereupon an investigation of scarcely inferior moment—that respecting the age of the earth—so thoroughly was the ancient authority intellectually crushed that it found itself incapable of asserting by force the patristic idea that our planet is less than six thousand years old.

Not but that a resistance was made. It was, however, of an indirect kind. The contest might be likened rather to a partisan warfare than to the deliberate movement of regular armies under recognized commanders. In its history there is no central figure like Galileo, no representative man, no brilliant and opportune event like the invention of the telescope. The question moves on to its solution impersonally. A little advance is made here by one, there by another. The war was finished, though no great battle was fought. In the chapter we are entering upon there is, therefore, none of that dramatic interest connected with the last. Impersonally the question was decided, and, therefore, impersonally I must describe it.

In Oriental countries, where the popular belief assigns to the creation of man a very ancient date, and even asserts for some empires a duration of hundreds of thousands of years, no difficulty as respects the age of the earth was felt, there seeming to have been time enough for every event that human researches have detected to transpire. But in the West, where the doctrine that not only the

Age of the earth.

The question is impersonally solved.

Oriental and Western doctrines of the age of the earth.

earth, but the universe itself, was intended for man, has been carried to its consequences with exacting rigor, circumstances forbid us to admit that there was any needless delay between the preparation of the habitation and the introduction of the tenant. They also force upon us the conclusion that a few centuries constitute a very large portion of the time of human existence, since, if we adopt the doctrine of an almost limitless period, we should fall into a difficulty in explaining what has become of the countless myriads of generations in the long time so past, and, considering that we are taught that the end of the world is at hand, and must be expected in a few years at the most, we might seem to arraign the goodness of God in this, that he has left to their fate immeasurably the larger proportion of our race, and has restricted his mercy to us alone, who are living in the departing twilight of the evening of the world.

But in this, as in the former case, a closer examination of the facts brings us to the indisputable conclusion that we have decided unworthily and untruly; that our guiding doctrine of the universe being intended for us is a miserable delusion; that the scale Correction of the European doctrine. on which the world is constructed as to time answers to that on which it is constructed as to space; that, as respects our planet, its origin dates from an epoch too remote for our mental apprehension; that myriads of centuries have been consumed in its coming to its present state; that, by a slow progression, it has passed from stage to stage, uninhabited, and for a long time uninhabitable by any living thing; that, in their proper order and in due lapse of time, the organic series have been its inhabitants, and of these a vast majority, whose numbers are so great that we can not offer an intelligible estimate of them, have passed away and become extinct, and that finally, for a brief period, we have been its possessors.

Of the intentions of God it becomes us, therefore, to speak with reverence and reserve. In those ages when there was not a man upon the earth, what was the object? Was the twilight only given that the wolf might follow his flying prey, and the stars made to shine that the royal tiger might pursue his midnight maraudings? Where was the use of so much that was beautiful and orderly, when there was not a solitary intellectual being to understand and enjoy? Even now, when we are so much disposed to judge of other worlds from their apparent adaptedness to be the abodes of a thinking and responsible order like ourselves, it may be of service to remember that this earth itself was for countless ages a dungeon of pestiferous exhalations and a den of wild beasts.

It might moreover appear that the conclusions to which we come, both as respects the position and age of the world, must necessarily have for their consequences the diminution and It elevates rather than degrades the position of man. degradation of man, the rendering him too worthless an object for God's regard. But here again we fall into an error. True, we have debased

his animal value, and taught him how little he is—how insignificant are the evils, how vain the pleasures of his life. But, as respects his intellectual principle, how does the matter stand? What is it that has thus been measuring the terrestrial world, and weighing it in a balance? What is it that has been standing on the sun, and marking out the orbits and boundaries of the solar system? What is it that has descended into the infinite abysses of space, examined the countless worlds that they contain, and compared and contrasted them together? What is it that has shown itself capable of dealing with magnitudes that are infinite, even of comparing infinities together? What is it that has not hesitated to trace things in their history through a past eternity, and been found capable of regarding equally the transitory moment and endless duration? That which is competent to do all this, so far from being degraded, rises before us with an air of surpassing grandeur and inappreciable worth. It is the soul of man.

From the facts given in the last chapter respecting the relations of the earth in space, we are next led to her relations in time.

So long as science was oppressed with the doctrine of the human destiny of the universe, which, as its consequence, made this earth the great central body, and elevated man to supreme importance, there was much difficulty in treating the problem of the age of the world. The history of the earth was at first a wild and fictitious cosmogony. Scientific cosmogony arose, not from any theological considerations, but from the telescopic ascertainment of the polar compression of the planet Jupiter, and the consequent determination by Newton that the earth is a spheroid of revolution. With a true cosmogony came a better chronology.

The patristic doctrine had been that the earth came into existence but little more than five thousand years ago, and to this a popular opinion long current was added, that its end might be very shortly expected. From time to time periods were set by various authorities determining the latter event, and, as true knowledge was extinguished, the year 1000 came to be the universally appointed date. In view of this, it was not an uncommon thing for persons to commence their testamentary bequests with the words, "In expectation of the approaching end of the world." But the tremendous moment passed by, and still the sun rose and set, still the seasons were punctual in their courses, and Nature wore her accustomed aspect. A later day was then predicted, and again and again disappointment ensued, until sober-minded men began to perceive that the Scriptures were never intended to give information on such subjects, and predictions of the end of the world fell into discredit, abandoned to the illiterate, whose morbid anticipations they still amuse.

As it was thus with

our planet, so it was as regards her

Anthropocentric
ideas of the be-
ginning and end
of the world.

origin. By degrees evidence began to accumulate casting a doubt on her recent date, evidence continually becoming more and more cogent. In no insignificant manner did the establishment of the heliocentric theory, aided by the discoveries of the telescope, assist in this result. As I have said, it utterly ruined past restoration Rise of the doctrine of illimitable age. the doctrine of the human destiny of the universe. With that went down all arguments which had depended on making man the measure of things. Ideas of unexpected sublimity as to the scale of magnitude on which the world is constructed soon enforced themselves, and proved to be the precursors of similar ideas as to time. At length it was perceived by those who were in the van of the movement that the Bible was never intended to deliver a chronological doctrine respecting the beginning any more than the end of things, and that those well-meaning men who were occupied in wresting it from its true purposes were engaged in an unhappy employment, for its tendency could be no other than to injure the cause they designed to promote. Nevertheless, so strong were the ancient persuasions, that it was not without a struggle that the doctrine of a long period forced its way—a struggle for the age of the earth, which, in its arguments, in its tendencies, and in its results, forcibly recalls the preceding one respecting the position of the earth; but, in the end, truth overrode all authority and all opposition, and the doctrine of an extremely remote origin of our planet ceased to be open to dispute.

In a scientific conception of the universe, illimitable spaces are of necessity connected with limitless time.

The discovery of the progressive motion of light offered the means of an absolute demonstration of this connection. Rays emitted by an object, and making us sensible of its presence by impinging on the eye, do not reach us instantaneously, but consume a certain period in their passage. Indications depending on the progressive motion of light.

If any sudden visible effect took place in the sun, we should not see it at the absolute moment of its occurrence, but about eight minutes and thirteen seconds later, this being the time required for light to cross the intervening distance. All phenomena take place in reality anterior to the moment at which we observe them by a time longer in proportion as the distance to be traveled is greater.

There are objects in the heavens so distant that it would take many hundreds of thousands of years for their light to reach us. Then it necessarily follows, since we can see them, that they must have been created and must have been shining so long.

The velocity with which light moves was first determined by the Danish astronomer Römer from the eclipses of Jupiter's satellites, November, 1675. It was, therefore, a determination of the rate for reflected solar light in a vacuum, and gave 198,000 miles in a second. In 1727, Brad-

ley determined it for direct stellar light by his great discovery of the aberration of the fixed stars. More recently, the experiments of M. Foucault and those of M. Fizeau, by the aid of rotating mirrors or wheels, have confirmed these astronomical observations, Fizeau's determination of the velocity approaching that of Römer. Probably, however, the most correct is that of Struve, 191,515 miles per second.

This astronomical argument, which serves as a general introduction, is strengthened by numerous physical and physiological facts. But of the different methods by which the age of the earth may be elucidated, I shall prefer that which approaches it through the phenomena of heat. Such a manner of viewing the problem has led to its determination in the minds of many thinking men.

As correct astronomical ideas began to prevail, it was perceived that all the heat now on the surface of our planet is derived from the sun. Through the circumstance of the inclination of her axis of rotation to the plane of her annual motion, or through the fact of her globular form occasioning the presentation of different parts of her surface, according to their latitudes, with more or less obliquity, and hence the reception of less or more of the rays, there may be local and temporary variations. But these do not affect the general principle that the quantity of heat thus received must be the same from year to year.

This thermometric equilibrium not only holds good for the surface, it may also be demonstrated for the whole mass of the planet. The day has not shortened by the $\frac{1}{1000}$ of a second since the time of Hipparchus, and therefore the decrease of heat can not have been so much as the $\frac{1}{3000}$ of a Fahrenheit degree, on the hypothesis that the mean dilatation of all terrestrial substances is equal to that of glass, $\frac{1}{150000}$ for one degree. If a decline had taken place in the intrinsic heat of the earth, there must have been a diminution in her size, and, as a necessary consequence, the length of the day must have become less. The earth has therefore reached a condition of equilibrium as respects temperature.

A vast body of evidence has, however, come into prominence, establishing with equal certainty that there was in ancient times a far higher temperature in the planet; not a temperature concerned with a fraction of a degree, but ranging beyond the limits of our thermometric scale. The mathematical figure of the earth offers a resistless argument for its ancient liquefied condition—that is, for its originally high temperature. But how is this to be co-ordinated with the conclusion just mentioned? Sir [?] an admission that there have elapsed prodigious [?] altho [?] limitless periods. As thus the true state [?] an t [?] ape, it was perceived that

the age of the earth is not a question of authority, not a question of tradition, but a mathematical problem sharply defined: to determine the time of cooling of a globe of known diameter and of ^{Necessity of} a long time. given conductivity by radiation in a vacuum.

In such a state of things, what could be more unwise than to attempt to force opinion by the exercise of authority? How unspeakably mischievous had proved to be a like course as respects the globular form of the earth, which did not long remain a mere mathematical abstraction, but was abruptly brought to a practical issue by the voyage of Magellan's ship. And on this question of the age of the earth it would have been equally unwise to become entangled with or committed to the errors of patristicism—errors arising from well-meant moral considerations, but which can never exert any influence on the solution of a scientific problem.

One fact after another bearing upon the question gradually emerged into view. It was shown that the diurnal variations of temperature—that is, those connected with night and day—extend but a few inches beneath the surface, the seasonal ones, connected with winter and summer, to many feet; but beyond this was discovered a stratum of invariable temperature, beneath which, if we descend, the heat increases at the rate of 1° Fahr. for every fifty or seventy feet. The uniformity of this rate seemed to imply that, at depths quite insignificant, a very high temperature must exist. This was illustrated by such facts as that the water which rushes up from a depth of 1794 feet in the Artesian well of Grenelle has a temperature of 82° Fahr. The mean temperature of Paris being about 51° Fahr., these numbers give a rate of 1° for every fifty-eight feet. If, then, the increase of heat is only 100° per mile, at a depth of less than ten miles every thing must be red hot, and at thirty or forty in a melted state. It was by all admitted that the rise of temperature with the depth is not at all local, but occurs in whatever part of the earth the observation may be made. The general conclusion thus furnished was re-enforced by the evidence of volcanoes, which could no longer be regarded as merely local, depending on restricted areas for the supply of melted material, since they are found all over the land and under the sea, in the interior of continents and by the shores, beneath the equator and in the polar regions. It had been estimated that there are probably two thousand aerial or subaqueous eruptions every century. Some volcanoes, as *Ætna*, have for thousands of years poured forth their lavas, and still there is an unexhausted supply. Every where a common source is indicated by the rudely uniform materials ejected. The fact that the lines of volcanic activity shift pointed to a deep source; the periodic increments and decrements of force bore the same interpretation. They far transcend the range of history. The volcanoes of central France date from the

Indications
of the interior
heat of
the earth.

Eocene period; their power increased in the Miocene, and continued through the Pliocene; those of Catalonia belong to the Pliocene, probably. Coupled with volcanoes, earthquakes, with their vertical, horizontal, and rotary vibrations, having a linear velocity of from twenty to thirty miles per minute, indicated a profound focus of action. The great earthquake of Lisbon was felt from Norway to Morocco, from Algiers to the West Indies, from Thuringia to the Canadian lakes. It absolutely lifted the whole bed of the North Atlantic Ocean. Its origin was in no superficial point.

A still more universal proof of a high temperature affecting the whole mass of the interior of the globe was believed to be presented in the small mean density of the earth, a density not more than 5.66 times that of water, the mean density of the solid surface being 2.7, and that of the solid and sea-surface together 1.6. But this is not a density answering to that which the earth should have in virtue of the attraction of her own parts. It implied some agent capable of rarefying and dilating, and the only such agent is heat. Although the law of the increase of density from the upper surface to the centre is unknown, yet a comparison of the earth's compression with her velocity of rotation demonstrated that there is an increasing density in the strata as we descend. The great fact, however, which stands prominently forth is the interior heat.

Not only were evidences thus offered of the existence of a high temperature, and, therefore, of the lapse of a long time by the present circumstances of the globe; every trace of its former state, duly considered, yielded similar indications, the old evidence corroborating the new. And soon it appeared that this would hold good whether considered in the inorganic or organic aspect.

In the inorganic, what other interpretation could be put on the universal occurrence of igneous rocks, some in enormous mountain ranges, some ejected from beneath, forcing their tortuous way through the resisting superincumbent strata; veins of various mineral constitution, and, as their relations with one another showed, veins of very different dates? What other interpretation of layers of lava in succession, one under another, and often with old disintegrated material between? What of those numerous volcanoes which have never been known to show any signs of activity in the period of history, though they sometimes occur in countries like France, pre-eminently historic? What meaning could be assigned to all those dislocations, subsidences, and elevations which the crust of the earth in every country presents, indications of a loss of heat, of a contraction in diameter, and its necessary consequence, fracture of the exterior consolidated shell along lines of least resistance? And though it was asserted by some that the catastrophes of which these are the evidences were occasioned by forces of

Proof from the mean density.

Inorganic proofs of a former high temperature.

unparalleled energy and incessant operation—unparalleled when compared with such terrestrial forces as we are familiar with—that did not, in any respect, change the interpretation, for there could have been no abrupt diminution in the intensity of those forces, which, if they had lessened in power, must have passed through a long, a gradual decline. In that very decline there thus spontaneously came forth ev-
 idences of a long lapse of time. The whole course of Nature These necessarily imply long time. satisfies us how gradual and deliberate are her proceedings; that there is no abrupt boundary between the past and the present, but that the one insensibly shades off into the other, the present springing gently and imperceptibly out of the past. If volcanic phenomena and all kinds of igneous manifestations—if dislocations, injections, the intrusion of melted material into strata were at one time more frequent, more violent—if, in the old times, mundane forces possessed an energy which they have now lost, their present diminished and deteriorated condition, coupled with the fact that for thousands of years, throughout the range of history, they have been invariably such as we find them now, should be to us a proof how long, how very long ago those old times must have been.

Thus, therefore, was perceived the necessity of co-ordinating the scale of time with the scale of space, and such views of the physical history of the earth were extended to celestial bodies which were considered as having passed through a similar course. In one, at least, this Support from astronomical facts. assertion was no mere matter of speculation, but of actual observation. The broken surface of the moon, its volcanic cones and craters, its mountains, with their lava-clad sides and ejected blocks glistening in the sun, proved a succession of events like those of the earth, and demonstrated that there is a planetary as well as a terrestrial geology, and that in our satellite there is evidence of a primitive high temperature, of a gradual decline, and, therefore, of a long process of time. Perhaps, also, considering the rate of heat-exchange in Venus by reason of her proximity to the sun, the pale light which it is said has been observed on her non-illuminated part is the declining trace of her own intrinsic temperature, her heat lasting until now.

If astronomers sought in systemic causes an explanation of these facts—if, for instance, they were disposed to examine how far Astronomical facts imply slow secular changes. changes in the obliquity of the ecliptic were connected therewith—it was necessary at the outset to concede that the scale of time on which the event proceeds is of prodigious duration, this secular variation observing a slow process of only $45''.7$ in a century; and hence, since the time of Hipparchus, two thousand years ago, the plane of the ecliptic has approached that of the equator by only a quarter of a degree. Or if, again, they looked to a diminishing of the eccentricity of the earth's orbit, they were compelled to admit the same postulate,

and deal with thousands of centuries. Under whatever aspect, then, the theory was regarded, if once a former high temperature was admitted, and the fact coupled therewith that there has been no sensible decline within the observation of man, whether the explanation was purely geological or purely astronomical, the motion of heat in the mass of the earth is so slow, yet the change that has taken place is so great, the variations of the contemplated relations of the solar system so gradual—under whatever aspect and in whatever way the fact was dealt with, there arose the indispensable concession of countless centuries.

To the astronomer such a concession was nothing extraordinary. It is not because of the time required that he entertains any doubt that the sun and his system accomplish a revolution round a distant centre of gravity in nineteen millions of years, or that the year of α Lyrae is half a million of ours. He looks forward to that distant day when Sirius will disappear from our skies, and the Southern Cross be visible, and Vega the polar star. He looks back to the time when γ Draconis occupied that conspicuous position, and the builders of the great pyramid, B.C. 3970, gave to its subterranean passage an inclination of $26^{\circ} 15'$, corresponding to the inferior culmination of that star. He tells us that the Southern Cross began to be invisible in $52^{\circ} 30' N.$, 2900 years before our era, and that it had previously attained an altitude of more than 10° . When it disappeared from the horizon of the countries on the Baltic, the pyramid of Cheops had been erected more than a thousand years.

We must pass by a copious mass of evidence furnished by aqueous causes of change operating on the earth's surface, though these Proofs of time from aqueous effects, add very weighty proof to the doctrine of a long period. The filling up of lakes, the formation of deltas, the cutting power of running water, the deposit of travertines, the denudation of immense tracts of country, the carrying of their detritus into the sea, the changes of shores by tides and waves, the formation of strata hundreds of miles in length, and imbedding therein of fossil remains in numbers almost beyond belief, furnished many interesting and important facts. Of these not a few presented means of computation. It would not be difficult to assign a date for such geographical events as the production of the Caspian and Dead Seas from an examination of the sum of saline material contained in their waters or deposited in their bed, with the annual amount brought into them by their supplying rivers. Such computations were executed as respects the growth of Lower Egypt and the backward cutting of Niagara Falls, and, though they might be individually open to criticism, their mutual accord and tendency furnished an evidence that could not be gainsaid. The continual accumulation of such evidence ought not to be without its weight on those who are still disposed to treat slightly the geological facts in developing truth.

To such facts were added all those, with which volumes might be filled, proving the universality of the movements of the solid crust of the earth—strata once necessarily horizontal now inclined at all angles, strata unconformable to one another—a body of evidence most copious and most satisfactory, yet demonstrating from the immensity of the results how slowly the work had gone on.

How was it possible to conceive that beds many hundred feet in thickness should have been precipitated suddenly from water? Their mechanical condition implied slow disintegration and denudation in other localities to furnish material; their contents showed no trace of violence; they rather proved the deposition to have occurred in a tranquil and quiet way. What interpretation could be put upon facts continually increasing in number like those observed in the southeast of England, where fresh-water beds a thousand feet thick are covered by other beds a thousand feet thick, but of marine origin? What upon those in the north of England, where masses once uplifted a thousand feet above the level, and, at the time of their elevation, presenting abrupt precipices and cliffs of that height, as is proved by the fractures and faults of the existing strata, have been altogether removed, and the surface left plain? In South Wales there are localities where 11,000 feet in thickness have been bodily carried away. Whether, therefore, the strata that have been formed, and which remain to strike us with astonishment at their prodigious mass, were considered; or those that have been destroyed, not, however, without leaving unmistakable traces of themselves; the processes of wearing away to furnish material as well as the accumulation, of necessity required the lapse of long periods of time. The undermining of cliffs by the beating of the sea, the redistribution of sands and mud at the bottom of the ocean, the washing of materials from hills into the lowlands by showers of rain, its transport by river courses, the disintegration of soils by the influence of frost, the weathering of rocks by carbonic acid, and the solution of limestone by its aid in water—these are effects which, even at the quickest, seem not to amount to much in the course of the life of a man. A thousand years could yield but a trifling result.

We have already alluded to another point of view from which these mechanical effects were considered. The level of the land and sea has unmistakably changed. There are mountain eminences ten or fifteen thousand feet in altitude in the interior of continents over which, or through which, shells and other products of the sea are profusely scattered. And though, considering the proverbial immobility of the solid land and the proverbial instability of the water, it might at first be supposed much more likely that the sea had subsided than that the land had risen, a more critical examination soon led to a change of opinion. Before our eyes, in some countries, elevations and depressions are taking

place, sometimes in a slow, secular manner, as in Norway and Sweden, that peninsula on the north rising, and on the south sinking, at such a rate that, to accomplish the whole seven hundred feet of movement, more than twenty-seven thousand years would be required if it had always been uniform as now. Elsewhere, as on the southwestern coast of South America, the movement is paroxysmal, the shore-line lifting for hundreds of miles instantaneously, and then pausing for many years. In the Morea also, range after range of old sea-cliffs exist, some of them more than a thousand feet high, with terraces at the base of each; but the Morea has been well known for the last twenty-five centuries, and in that time has undergone no material change. Again, in Sicily, similar interior sea-cliffs are seen, the rubbish at their bases containing the bones of the hippopotamus and mammoth, proofs of the great change the climate has undergone since the sea washed those ancient beaches. Italy, pre-eminently the historic country, in which, within the memory of man, no material change of configuration has taken place, since the Pleistocene period, very late geologically speaking, has experienced elevations of fifteen hundred feet. The seven hills of Rome are of the Pliocene, with fluviatile deposits and recent terrestrial shells two hundred feet above the Tiber. There intervened between the older Pliocene and the newer a period of enormous length, as is demonstrated by the accumulated effects taking place in it, and, indeed, the same may be said of every juxtaposed pair of distinctly marked strata. It demanded an inconceivable time for beds once horizontal at the bottom of the sea to be tilted to great inclinations; it required also the enduring exertion of a prodigious force. Ascent and descent may be detected in strata of every age; movements sometimes paroxysmal, but more often of a tranquil and secular kind. The coal-bearing strata, by gradual submergence, attained in South Wales a thickness of 12,000 feet, and on our own continent, in Nova Scotia, a total thickness of 14,570 feet; the uniformity of the process of submergence and its slow steadiness is indicated by the occurrence of erect trees at different levels: seventeen such repetitions may be counted in a thickness of 4515 feet. The age of the trees is proved by their size, some being four feet in diameter. Round them, as they gradually went down with the subsiding soil, calamites grew at one level after another. In the Sydney coal-field fifty-nine fossil forests thus occur in superposition.

Such was the conclusion forcing itself from considerations connected with inorganic nature. It received a most emphatic endorsement from the organic world, for there is an intimate connection between the existence and well-being both of plants and animals, and the heat and cold to which they are exposed. Why is it that the orange and the lemon grow in the south of New York? What is it that will inevitably be exposed to one of our cold winters?

Organic proofs
of a former
high tempera-
ture.

What is it that must take place if, in Florida or other of the Southern states, a season of unusual rigor should occur? Does not heat thus confine within a fixed boundary the spread of those plants? And so, again, how many others there are which grow luxuriantly with us, but are parched up and killed if fortuitously carried beneath a hot tropical sun. To every one there is a climate which best suits the condition of its life, and certain limits of heat and cold beyond which its existence is not possible.

If the mean annual heat of the earth's surface were slowly to rise, and, in the course of some centuries, the temperature now obtaining in Florida should obtain in New York, the orange and lemon would certainly be found here. With the increasing heat those plants Boundary of organisms by heat. would commence a northward march, steadily advancing as opportunity was given. Or, if the reverse took place, and for any reason the heat of the torrid zone declined until the winter's cold of New York should be at last reached under the equator, as the descent went on the orange and lemon would retreat within a narrow and narrower region, and end by becoming extinct, the conditions of their exposure being incompatible with the continuance of their life. From such considerations it was therefore seen that not only does heat arrange the limits of the distribution of plants, erecting round them boundaries which, though invisible, are more insuperable than a wall of brass, it also regulates their march, if march there is to be—nay, even controls their very existence, and to genera, and species, and individuals appoints a period of duration.

Such observations apply not alone to plants; the animal kingdom offers equally significant illustrations. Why does the white bear enjoy the leaden sky of the pole and his native iceberg? Animals localized as well as plants. Why does the tiger restrict himself to the jungles of India? Can it be doubted that, if the mean annual temperature should decline, the polar bear would come with his iceberg to corresponding southern latitudes, or, if the heat should rise, the tiger would commence a northward journey? Does he not, indeed, every summer penetrate northward in Asia as far as the latitude of Berlin, and retire again as winter comes on? Why is it that, at a given signal, the birds of passage migrate, pressed forward in the spring by the heat, and pressed backward in the autumn by the cold? The annual migration of birds illustrates the causes of geological appearances and extinctions. Do we not herein recognize the agent that determines animal distribution? We must not deceive ourselves with any fancied terrestrial impediment or restraint. Let the heat rise but a few degrees, and the turkey-buzzard, to whose powerful wing distances are of no moment and the free air no impediment, would be seen hovering over New York; let it fall a few degrees, and he would vanish from the streets of Charleston; let it fall a little more, and he

would vanish from the earth. Shell-fish, once the inhabitants of the British seas, retired during the glacial period to the Mediterranean, and with the returning warmth have gone back northward again.

Animals are thus controlled by heat in an indirect as well as a direct way. Indirectly; for, if their food be diminished, they must seek a more ample supply; if it fails, they must perish. Doubtless it was insufficient food, as well as the setting in of a more rigorous climate, that occasioned the destruction of the mastodon giganteus, which abounded in the United States after the drift period. Such great elephantine forms could not possibly sustain themselves against the rigors of our present winters, nor could they find a sufficient supply of food for a considerable portion of the year. The disappearance of animals from the face of the earth was, as Palæontology advanced, ascertained to have been a determinate process, a condition of their existence, and either inherent in themselves or dependent on the surrounding circumstances. It was proved that the forms now existing are only an insignificant part of the countless tribes that had lived. The earth has been the theatre of a long succession of appearances and removals, of creations and extinctions, reaching to the latest times. In the Pleistocene of Sicily, $\frac{3}{17\frac{1}{2}}$ of the fossil shells are extinct; in the bone-caverns of England, out of thirty-seven mammals eighteen are extinct. But judging, from what may be observed of the duration of races contemporary with us, that their life is prolonged for thousands of years, successive generations of the same species in a long order replacing their predecessors before final removal occurs, this again resistlessly brought forward the same conclusion to which all the foregoing facts had pointed, that there have transpired since the introduction of animal life upon this globe very long periods of time.

Through the operation of this law of extinction and of creation, animated nature, both on the continents and in the seas, has undergone a marvelous change. In the lias and oolitic seas, the Enaliosauria, Cetiosauria, and Crocodilia dominated as the Delphinidæ and Balænidæ do in ours; the former have been eliminated, the latter produced. Along with the cetaceans came the soft-scaled Cycloid and Ctenoid fishes, orders which took the place of the Ganoids and Placoids of the Mesozoic times. One after another successive species of air-breathing reptiles have been created, continued for their appointed time to exist, and then died out. The development has been, not in the descending, but in the ascending order; the Amphitheria, Spalacotheria, Triconodon of the Mesozoic times were substituted by higher tertiary forms. Nor have these mutations been abrupt. If mammals are the chief characteristic of the Tertiary ages, their first beginnings are seen far earlier; in the triassic and oolitic formations there are a few of the lower orders struggling, as it were, to emerge. The aspect of animated nature has alto-

gether changed. No more does the camelopard wander over Europe as he did in the Miocene and Pliocene times; no more are great elephants seen in the American forests, the hippopotamus in England, the rhinoceros in Siberia. The hand of man has introduced upon this continent the horse of the Old World; but the American horse, that ran on the great plains contemporary with the megatherium and megalonyx, has for tens of thousands of years been extinct. Even the ocean and the rivers are no exception to these changes.

What, then, is the manner of origin of this infinite succession of forms? It is often sufficient to see clearly a portion of a Creations and extinctions by law. plan to be able to determine with some degree of certainty the general arrangement of the whole; it is often sufficient to know with precision a part of the life of an individual to guess with probable accuracy his action in some forthcoming event, or to determine the share he has borne in affairs that are past. It is enough to appreciate thoroughly the style of a master to ascertain without doubt the authenticity of an imputed picture. And so, in the affairs of the universe, it is enough to ascertain the manner of operation of a part in order to settle the manner of operation of the whole. When, therefore, it was perceived how the disappearance of vanishing forms from the surface of the globe is accomplished—that it is not by a sudden and grand providential intervention—that there is no visible putting forth of the Omnipotent hand, but slowly and silently, yet surely, the ordinary laws of Nature are permitted to take their course—that heat, and cold, and want of food, and dryness, and moisture, in the end, as if by an irresistible destiny, accomplish the event, it seemed to indicate that, as regards the introduction of new-comers, a suitableness of external conditions had called them forth, as an unsuitableness could end them. Changes in the constitution of the air or its pressure, in the composition of the sea or its depth, in the brilliancy of light or the amount of heat, in the inorganic material of a medium, will modify old forms into new ones, or compel their extinction. Birth and death go hand in hand; creation and extinction are inseparable. The variation of organic form is continuous; it depends upon an orderly succession of material events; appearances and eliminations are managed upon a common principle; they stand connected with the irresistible course of great mundane changes. It was impossible that geologists could reach any other conclusion than that such phenomena are not the issue of direct providential interventions, but of physical influences. The procession of organic life is not a motley march; it follows the procession of physical events; and, since it is impossible to re-establish a sameness of physical conditions that have once come to an end, or reproduce the order in which they have occurred, it of necessity follows that no organic form can reappear after it has once died out—once dead, it is clean gone forever.

In the course of the life of individual man, the parts that constitute his system are undergoing momentary changes; those of to-day are not the same as those of yesterday, and they will be replaced by others to-morrow. There have been, and are every instant, interstitial deaths of all the constituent portions, and an unceasing removal of those that have performed their duty. In the stead of departing portions, new ones have been introduced, interstitial births and organizations perpetually taking place. In physiology it became no longer a question that all this proceeds in a determinate way under the operation of principles that are fixed, of laws that are invariable. The alchemists introduced no poetical fiction when they spoke of the microcosm, asserting that the system of man is emblematical of the system of the world. The intercalation of a new organic molecule in a living being answers to the introduction of a new form in the universal organic series. It requires as much power to call into existence a living molecule as to produce a living being. Both are accomplished upon the same principle, and that principle is not an incessant intervention of a supernatural kind, but the operation of unvarying law. Physical agents, working through physical laws, remove in organisms such molecules as have accomplished their work and create new ones, and physical agents, working through physical laws, control the extinctions and creations of forms in the universe of life. The difference is only in the time. What is accomplished in the one case in the twinkling of an eye, in the other may demand the lapse of a thousand centuries.

The variation of organic forms, under the force of external circumstances, is thus necessary to be understood in connection with that countless succession of living beings demonstrated by geology. It carries us, in common with so much other evidence, to the lapse of a long time. Nor are such views as those to which we are thus constrained inconsistent with the admission of a Providential guidance of the world. Man, however learned and pious he may be, is not always a reliable interpreter of the ways of God. In deciding whether any philosophical doctrine is consistent or inconsistent with the Divine attributes, we are too prone to judge of those attributes by our own finite and imperfect standard, forgetting that the only test to which we ought to resort is the ascertainment if the doctrine be true. If it is true, it is in unison with God. Perhaps some who have rejected the conception of the variation of organic forms, with its postulate limitless duration, may have failed to remember the grandeur of the universe and its relations to space and to time; perhaps they do not recall the system on which it is administered. Like the anthropomorphite monks of the Nile, they conceive of God as if he was only a very great man; else how could it for a moment have been doubted that he was more—I use the expression reverently—in the nature of a Creator and Rector to carry out his intentions

by the summary operations of law? It might be consistent with the weakness and ignorance of man to be reduced to the necessity of personal intervention for the accomplishment of his plans, but would not that be the very result of such ignorance? Does not absolute knowledge actually imply procedure by preconceived and unvarying law? Is not momentary intervention altogether derogatory to the thorough and absolute sovereignty of God? The astronomical calculation of ancient events, as well as the prediction of those to come, is essentially founded on the principle that there has not in the times under consideration, and that there will never be in the future, any exercise of an arbitrary or overriding will. The corner-stone of astronomy is this, that the solar system—nay, even the universe, is ruled by necessity. To operate by expedients is for the creature, to operate by law for the Creator; and so far from the doctrine that creations and extinctions are carried on by a foreseen and predestined ordinance—a system which works of itself without need of any intermeddling—being an unworthy, an ignoble conception, it is completely in unison with the resistless movements of the mechanism of the universe, with whatever is orderly, symmetrical, and beautiful upon earth, and with all the dread magnificence of the heavens.

It was in Italy that particular attention was first given to organic remains. Leonardo da Vinci asserts that they are real shells, or the remains thereof, and hence that the land and sea must have changed their relative position. At this time fossils were looked upon as rare curiosities, no one supposing that they were at all numerous, and many were the fantastic hypotheses proposed to account for their occurrence. Some referred them to the general deluge mentioned in Scripture; some to a certain plastic power obscurely attributed to the earth; some thought that they were engendered by the sunlight, heat, and rain. To Da Vinci is due the first clear assertion of their true nature, that they are actually the remains of organic beings. Soon the subject was taken up by other eminent Italians. Fracaster wrote on the petrifications of Verona; Scilla, a Sicilian, on marine bodies turned into stone, illustrating his work by engravings. Still later, Vallisneri, 1721, published letters on marine bodies found in rocks, attempting by their aid to determine the extent of the marine deposits of Italy. These early cultivators of geology soon perceived the advantage to be gained by the establishment of museums and the publication of catalogues. The first seems to have been that of John Kentman, an example that was followed by Calceolari and Vallisneri. Subsequently Fontanelle proposed the construction of charts in accordance with fossil remains; but the principle involved was not applied on the great scale as a true geological test until introduced by Smith in connection with the English strata.

Defense of the
process of all
things by law.

Historical sketch
of early Palæon-
tology.

To Steno, a Dane, is due the recognition of preorganic in contradistinction to organic rocks, a distinction the terms of which necessarily involve the idea of time. Soon it became generally recognized that the strata in which organic remains occur are of a later date than those devoid of them, the preorganic rocks demonstrating a preorganic time. Moreover, as facts were developed, it was plain that there are essential differences in the relations of fossils, and that, though in Italy the same species of shells may occur in the mountains that occur in the adjacent seas, this was very far from being the case uniformly elsewhere. At length the truth began to emerge, that in proportion as the strata under examination are of an older date, so are the differences between their organic remains and existing species more marked. It was also discovered that the same species often extended superficially over immense districts, but that in a vertical examination one species after another rapidly appears in a descending order—an order which could be verified in spite of the contortions, fractures, and displacements of the strata. A very important theoretical conclusion was here presented; for the rapid succession of essentially different organic forms, as the rocks were older, was clearly altogether inconsistent with one catastrophe, as the universal deluge, to which it had been generally referred. It was plain that the thickness of the strata in which they were enveloped, and the prodigious numbers in which they occurred, answered in some degree to the period of life of those fossils, since every one of them, large or small, must have had its time of birth, of maturity, and of death. When, therefore, it could be no longer doubted that strata many hundreds of feet in thickness were crowded with such remains, it became altogether out of the question to refer their entombment to the confusion of a single catastrophe, for every thing indicated an orderly and deliberate proceeding. Still more cogent did this evidence become when, in a more critical manner, the fossils were studied, and some strata were demonstrated to be of a fresh-water and others of a marine origin, the one intercalated with the other like leaves in a book. To this fact may be imputed the final overthrow of the doctrine of a single catastrophe, and its replacement by a doctrine of periodical changes.

From these statements it will therefore be understood that, commencing with the first appearance of organization, an orderly process was demonstrated from forms altogether unlike those with which we are familiar, up to those at present existing, a procedure conducted so slowly that it was impossible to assign for it a shorter duration than thousands of centuries. Moreover, it seemed that the guiding condition which had controlled this secular march of organization was the same which still determines the possibility of existence and the distribution of life. The succession of organic forms indicates a

The preorganic time.

Insufficiency of a single catastrophe.

The orderly progression of organization.

clear relation to a descending temperature. The plants of the earliest times are plants of an ultratropical climate, and that primitive vegetation seemed to demonstrate that there had been a uniform climate—a climate of high temperature—all over the globe. The coal-beds of Nova Scotia exhibited the same genera and species as those of Europe, and so well marked was the botanical connection with the declining temperature in successive ages that attempts were made to express eras by their prevailing organisms; thus Brongniart's division is for the Primary strata, the Age of Acrogens; the Secondary, exclusive of the Cretaceous, the Age of Gymnogens; the third, including the Cretaceous and Tertiary, the Age of Angiosperms. It is to be particularly remarked that the Cretaceous flora, in the aggregate, combines the antecedent and succeeding periods, proving that the change was not by crisis or sudden catastrophe, but that the new forms rose gently among the old ones. After the Eocene period, dicotyledonous angiosperms became the prevalent form, and from that date to the Pleistocene the evidences of a continued refrigeration are absolute.

As thus an examination was made from the most ancient to the later ages, indications were found of a climate arrangement more and more distinct—in the high latitudes, from the ultratropical through the tropical, the temperate, down to the present frigid state; in lower latitudes the declining process stopping short at an earlier point. It therefore appeared that there has been a production of climates both in an order of time and in an order of locality, the greatest change having occurred in the frigid zone, which has passed through all mean temperatures, an intermediate change in the temperate, and a minimum in the torrid zone. The general effect has thus been to present a succession of surfaces on the same planet adapted to a varied organization, and offering a more magnificent spectacle than if we were permitted to inspect many different planets; for in them there might be no necessary connection of their forms of life, but in this there is, so that, were our knowledge of Comparative Physiology more perfect, we might amuse ourselves with intercalating among the plant and animal organisms familiar to us hypothetical forms that would make the series complete, and verify our principles by their subsequent discovery in the deep strata of the earth.

Does not this progression of life in our planet suggest a like progression for the solar system, which in its aggregate is passing in myriads of years through all organic phases? May we not also, from our solar system, rise to a similar conception for the universe?

There are two very important considerations, on which we must dwell for the complete understanding of the consequences of these changes: 1st. The mechanism of the declining temperature; 2d. Its effect in the organic world.

1st. A uniformly high temperature could never be manifested all over the surface of our planet through any heating influence of the sun.

The nature of terrestrial declining temperature.

A high and uniform temperature unerringly points to an internal cause; and the gradual appearance of climates, manifesting a relatively increasing power of the sun, indicates the slow diminution of that internal heat. But this is precisely the conclusion which was come to from a contemplation of the earth from a purely physical point of view. So long as its intrinsic heat overpowered that derived from the sun, it was not possible that any thing answering to climates could be established; and, until a certain degree of cooling by radiation had been accomplished, the heat must have been comparatively uniform in all latitudes; but, that point gained, there necessarily ensued an arrangement of zones of different temperatures, or, in other words, climates appeared, the process being essentially slow, and becoming slower as the loss of heat went on. Finally, when loss of heat from the earth ceased, an equilibrium was reached in the climate arrangement as we now find it. Thus purely physical as well as geological considerations brought philosophers on this point to the same conclusion—that conclusion which has been so often repeated—very long periods of time.

2d. As to the effect on the organic world. Nothing can live at a temperature higher than the boiling-point of water, for the condition of life implies that there shall circulate from part to part of a living mechanism a watery liquid, sap, or blood. From this it necessarily follows that a planet, the temperature of which is above a certain limit, must necessarily have a lifeless surface; and this seemed to be the interpretation of that preorganic time to which we have referred. Moreover, when the temperature suitably descends so as to come within the limit at which life is possible, its uniformity over the surface of a planet will produce a sameness in the organization. It would be an identity if heat were the only regulating condition of life. At this stage of things, the solar heat overpowered, and a sensibly uniform temperature in all latitudes existing, still the only possible organic forms are those consistent with a high temperature, uniformity in the physical condition impressing a general uniformity in the aspect of life geographically. But the moment that climate arrangement has become possible, variety of organic form becomes possible. Now also ensues another all-important result—geographical distribution. Both of plants and animals, those whose vital conditions are inconsistent with the occurring change must retire from the affected locality. In plants this retrocession is brought to pass by the gradual sickening and death of individuals, or the impossibility of reproduction; in animals there is added thereto, because of their power of locomotion, voluntary retirement, as in the case of individuals, and immobility

Consequent effect on the Flora and Fauna.

Production and distribution of new organisms.

in the species is corrected by locomotion in the individual. The affected region has become unsuitable, cheerless, uncomfortable; they abandon it; and as the boundary they thus, in the one case, can not, and in the other will not overpass, advances, so do they recede before it. If the change was abrupt, or took place by a sudden crisis, there would seem to be no other possible event than an overcrowding of the unaffected region and a desolation of the part that had varied. But, since a developing cell under a new condition produces a new form, and since the physical change is taking place with extreme slowness, the appearance of modified structures ensues. And thus, by decline of temperature, two distinct results are accomplished—the production of organic forms in an order of succession, new ones replacing the old, as if they were transmutations of them, and geographical distribution.

In my Physiology I have endeavored to explain in detail the principles here set forth. I have endeavored to show that the aspect of sameness presented by an animal or plant is no proof of unchangeability. Those forms retain in our times their special aspect because the conditions of the theatre in which they live do not change; but let the mean temperature rise, let the sun-rays become brighter, change the composition of the air, and forthwith the world of organization would show how profoundly it was affected. Nor need such changes, in one sense, be more than insignificant to produce prodigious results. Thus the air contains only $\frac{1}{20000}$ of its volume of carbonic acid gas. That apparently trifling quantity taken away, in an instant the whole surface of the earth would become a desolate waste, without the possibility of vegetable life.

As physical geology advanced, the Coal period was perceived to be the chief epoch in the history of our planet. Through a slow decline of temperature, a possibility had gradually been attained, so far as the condition of heat was concerned, for a luxuriant vegetable growth. All that prodigious mass of carbon now found in the earth in the various forms of coal existed as carbonic acid in the atmosphere. The proportion of free oxygen was less than at present by a volume equal to the excess of carbonic acid. A change in the constitution of this primæval atmosphere was occasioned by the action of the light; for, under the influence of the sun-rays, plants decompose carbonic acid, appropriating its carbon, and, for the most part, setting the oxygen free. The quantity of carbon which can thus be condensed for the use of a plant, and, indeed, every such decomposing action by light, is directly proportionate to the quantity of light consumed, as experiments which I have personally made have proved. For the production of so great a weight of combustible matter a very long period of time was necessarily required, that the sun might supply the necessary luminous influence.

THE HISTORY OF LIFE STRATA FROM THE SEA.

As the life continued their work, changing the constitution of the atmosphere, the constitution of the surface of the earth. There was a great change in the vegetation, equisetaceæ, coniferæ. The amount of carbonic acid in the air correspondingly diminished, that of a heavy gas by a lighter one, the temperature slowly taking the form of the sea, in its surface, the effect of the sunlight: not diminished, but the removal of carbonic acid from the sea, in portions of that gas were perpetually being removed, in order to maintain a diffusion-equilibrium between the gas of the air. And now no longer was the water those great quantities of carbonic acid, which had been concealed in it, the decomposition of the earth being inevitably followed by the precipitation of carbonate of lime in the sea. The sea was now a vast precipitate: but the problem was not solved, in fact it still under forms of organic life, some small, some with and posterior to the great change, the sea was suffering an invisible change, the sun, and the surface of the solid earth, were now manifest, and, it may be said, more luxuriant, were developing themselves, and the possibility was now approached, of animal types very much higher than any that had been known. A heavy atmosphere, full of a noxious gas, was now giving place to a cold-blooded animals could maintain, but after the great change in the constitution of the atmosphere, the quickly-respiring and hot-blooded animals were now possible. Hitherto the highest advancement that animals had reached was in batrachian and lizard-like organisms: yet now they were to participate in the change, increasing in capacity. The pterodactyl of the chalk, a flying reptile, was seventeen feet from tip to tip of its wings. The sea was now suitable for mammals, both placental and implacental. One after another, in their due order, appeared the cetacean, marine, as the cetacean; aerial, as the bat; and in the Eocene, quadrumanous animals, but not, as yet, the monkey.

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times, yet it is scarcely likely that any material modification of their order of occurrence will ever be made. Birds, mammals, reptiles, fishes, and invertebrates may each be detected in earlier strata; even for some of those formations now regarded as non-fossiliferous, organisms may be found; but it is not at all probable that the preponderance of reptiles will ever cease to be the essential characteristic of the Secondary rocks, or that of mammals of the Tertiary, or that a preceding period of vast duration, in which the type of life had been the invertebrate, will ever be doubted. Nothing, probably, will ever be discovered to invalidate the physical conclusion that, while there was an excess of carbonic acid in the air, the Flora would tend to be Cryptogamic and Gymnospermic, and that there would be a scarcity of monocotyledons and dicotyledonous angiosperms in the coal; nothing to disprove the fact that the animals were slow-breathing and cold-blooded; and that it was not until after the oxygen of the air had increased and the mean temperature had declined that birds made their appearance. Though both placental and marsupial animals may hereafter be found earlier than the Stonesfield slate; though wood and herb eating beetles, grasshoppers, dragon-flies, and May-flies may be found beneath the lias, and scorpions and cockroaches beneath the coal; though, also beneath the coal, salamanders and Sauroid batrachians, of which the archegosaurus is an example, may occur; though reptiles, as the telerpeton, may be found deeper than the old red sandstone; yet the connection between aerial constitution and form of life will never be shaken. Still will remain the facts that the geographical distribution of types was anterior to the appearance of existing species; that organisms first appeared in a liquid medium, primitively marine, then fluviatile, and at last terrestrial; that Radiates, Mollusks, Articulates, Vertebrates, were all at first aquatic, and that the Radiates have ever remained so; that the plane of greatest vital activity has ever been the sea-level, where the earth and air touch each other; that the order of individual development is the order of mundane development. Still will remain the important conclusions that the mammalian Fauna has diverged more rapidly than the testaceous; that hot-blooded animals have not had that longevity of species which has been displayed by the cold, just as we observe in the individual the possibility of muscular contraction by a given galvanic force lasts much longer in the latter than in the former; that if the hot-blooded tribes have thus a briefer duration, they enjoy a compensation in the greater energy of their life—perhaps this being the cause and that the effect; that, notwithstanding the countless forms exhibited by species, their duration is so great that they outlive vast changes in the topographical configuration of countries—the Fauna of some countries having been in existence before those countries themselves; that the plan of individual development has ever been as it is now, and that sameness of external influence produces similarity of organization.

The dates of organisms may change, but the order not.

In its early history theoretical geology presented two schools—one insisting on a doctrine of catastrophes, one on a doctrine of uniformity. The former regarded those changes which have manifestly taken place in the history of our planet as having occurred at epochs abruptly. To this doctrine the prevailing impression that there had been providential interventions lent much force. The other school, reposing on the great principle of the invariability of the laws of Nature, insisted that affairs had always gone on at the same rate and in the same way as they do now. Hence it maintained an opposition to the catastrophists, and in this, it may be said, was actually not true to its own principles. Any doctrine of uniformity, rightly considered from its most general point of view, includes an admission of catastrophes. Numerous illustrations of this truth spontaneously suggest themselves. A tower, the foundations of which are slowly yielding, may incline more and more for many centuries, but the day must come in which it will fall at last. In the uniformity of the disturbance a catastrophe was eventually involved. And thus, in what has been said respecting geological events, though they are spoken of as proceeding quietly and with uniformity, it may be understood that sudden crises are also contemplated. Moreover, they who adopt the doctrine of uniformity in an absolute sense must pay a due regard to the variations in intensity of physical acts which their own principles imply. The uniform cooling of a hot body actually means a cooling at first fast, and then slower and slower; and invariability of chemical change actually implies more violent and summary modifications at a high temperature than at one which is low.

But, though it may at first sight have appeared that an admission of the doctrine of catastrophes was in harmony with a providential government of the world, and that the emergence of different organic forms in successive ages was a manifestation of creative intervention, of which it was admitted that as many as from twelve to twenty, if not more, successive instances might be recognized, we may well congratulate ourselves that those important doctrines rest upon a far more substantial basis. Rightly considered, the facts lead to a very different conclusion. Physiological investigations have proved that all animals, even man, during the process of development, pass in succession through a definite cycle of forms. Starting from a simple cell, form after form, in a definite order, is assumed. In this long line of advance the steps are ever, in all individuals, the same. But no one would surely suppose that the changed aspect at any moment presented is due to a providential interposition. On the contrary, it is the inevitable result of a process which has been taking place under the law of development. It is the precursor of what is about to follow. In the successive orders, and genera, and spe-

The doctrine of catastrophes and uniformity.

Successive forms assumed by man.

But they are rigidly determined by law.

cies are the counterparts of these temporary embryonic forms of the individual. Indeed, we may say of those successive geological beings that they are mere embryos of the latest—embryos that had gained a power of reproduction. How shall we separate the history of the individual from the history of the whole? Do not the fortunes and way of progress of the one follow the fortunes and way of progress of the other? If, in a transitory manner, these forms are assumed in the individual, equally in a transitory manner are they assumed by the race. Nor would it be philosophical to suppose that the management in the one instance differs from the management in the other. If the one is demonstrably the issue of a law in action, so must the other be too. It does not matter that the entire cycle is passed through by the individual in the course of a few months, while in the race it demands ages. The standard of time that ought to be ap- Individual and race development conducted in the same way.plied is the respective duration of life. In man it is much if he attains to threescore years and ten; but the entire period of human record, embracing several thousand years, offers not a single instance of the birth, maturity, and death of a species. They, therefore, who think they find in the successive species that have in an orderly manner replaced each other in the life of the earth the sure proof of Divine intervention, would do well to determine at what point the production of such forms by law ceases, and at what point their production by the immediate act of God begins. Their task will be as hard as to tell where one color in the rainbow ends and where the next commences. They will also do well to remember that, in great mundane events, the scale of time is ample, and that there may be no essential difference between a course that is run over in a few days and one that requires for its completion thousands of centuries.

The co-existence of different types in the organic series was the incontrovertible fact by which was demonstrated the gradual Catastrophes disproved by the co-existence of types. passage from form to form without catastrophes, the argument relied upon gathering strength from such circumstances as these, that even the fossil shells of the modern Italian tuffs which are not extinct exhibit a slight want of correspondence when compared with those now inhabiting the Mediterranean, some of the old ones being twice and a half as large as the present, and that there is a numerical passage from strata containing seventy per cent. of recent shells to those that are altogether recent, or contain one hundred per cent. This is manifestly indicative of a continual impression bringing on a corresponding modeling. It is the proof of a slow merging into, or of a measured assumption of, the new form—a transition, for the completion of which probably a very long time is required. That the existing reindeer is found in the same fluviatile deposits with an extinct hippopotamus seemed certainly to prove that there was a condition of things in

which the co-life of those animals was possible in the same locality, and that, as the physical causes slowly changed, the one might be eliminated and the other might be left. That the regulating conditions were altogether physical was obvious from such facts as that in the bone-caves of Australia all the mammals are marsupial, and in the pampas of South America they are allied to such forms as are indigenous, armadilloes, sloths, etc., showing the tokens of lineage or hereditary transmission. For still more remote times numerous instances of a similar nature were detected; thus, throughout the whole Secondary period, the essential characteristic was the wonderful development of reptile life, while in the Tertiary it was the development of mammals. But the appearance of mammals had commenced long before that of reptiles had ceased. Indeed, the latter event is incomplete in our times; for, though the marine Saurians have been almost entirely removed, the fluviatile and terrestrial ones maintain themselves, though diminished both in species and individuals. Now such an overlapping of reptiles and mammals was altogether irreconcilable with the doctrine of a crisis or catastrophe, and, in fact, it demonstrated the changing of organisms in the changing of physical states.

Cuvier maintained the doctrine of the permanence of animal species from the considerations that the oldest known do not appear to have undergone any modification, and that every existing one shows a resistance to change. If his observations are restricted to periods not exceeding human history, they may perhaps be maintained; but that duration can not be looked upon as more than a moment in the limitless progress we are considering, and it was in this view that Cuvier's doctrine proved to be incapable of defense. What does it signify if our domestic animals show no variations when compared with the corresponding images depicted on the hieroglyphic monuments of Egypt, or with the descriptions left by ancient authors? Evidence of that kind is valueless. Does the geologist ask of the architect his opinion whether there have ever been upliftings and down-sinkings of the earth? If he did, would not every structure in Europe be brought forward as an evidence that nothing of the kind had ever occurred? A leaning tower, or a church with inclining walls in Italy, might pass for nothing; the Pyramids would testify that Egypt itself had never undergone any disturbance—they remain solid on their bases, undisturbed. But what is the weight of all this when placed in opposition with the mass of evidence offered by inclined and fractured strata? And yet such is precisely the proof offered in behalf of the permanence of animals. The facts with which the zoologist deals, like those on which the architect depends, are insufficient for the purpose—they are wanting in extent of time. There have been movements in the crust of the earth, though every building in the

Cuvier's doctrine
of permanence of
species.

Imperfection of
evidence in its
support.

world may be perpendicular; there have been transformations of organisms, though for four thousand years there may have been no perceptible change.

If ever there had been a universal creation of all possible organic forms or combinations, forthwith vast numbers of them must have disappeared, every type being eliminated which was not in correspondence with the external conditions or with the medium in which it was placed. If the medium or the physical conditions underwent a variation, a corresponding variation in the forms that could by possibility exist must ensue, and, from a thorough study of those not eliminated, the physical conditions might be ascertained; and conversely, from a thorough knowledge of the physical conditions, the forms that could escape elimination might be designated. The facts on which Cuvier rested did not demonstrate what he supposed. His immobility of species was no consequence of an innate or intrinsic resistance possessed by them, but merely an illustration that external physical agents had not undergone any well-marked variation in the time with which he was concerned.

What is here meant by variation in physical forces or conditions is not any intrinsic change in their nature, but the varied manner in which they may work by interfering with one another, or experiencing declines of intensity. From the fact that we may read in the fixed stars, through the progressive motion of light, the history of a million of past years, we may be sure that the forces of nature have undergone no intrinsic change; that light was propagated at the same rate, was capable of producing the same optical and chemical effects, and varied in its intensity by distance, as it does now; that heat determined corporeal magnitudes. These are things that in their nature are absolutely unchangeable. Always, as now, the freezing of water, and its boiling under a given pressure, must have been the same; there must have been a thermometric zero of life and an upward limit, no organic process ever going on below 32° Fahrenheit or above 212° Fahrenheit.

But out of this invariability of natural causes variations in their condition of action arise, and it is these that affect organic forms. Of such forms, some become at length incapable of maintaining themselves in the slow progress of change; others acclimate, or accommodate, or suit themselves thereto by undergoing modifications, and this was at last discerned to be the true explanation of extinctions and appearances, events taking place very slowly in untold periods of time, and rather by imperceptible degrees than by a sudden catastrophe or crisis.

The doctrine of the transmutation of species has met with no little resistance. They who have refused to receive it as one of the truths of

Control of organisms by physical conditions.

Nature of variation of physical conditions.

Effect thereof on organisms.

Transmutation
of species.

Nature have perhaps not given full weight to physiological evidence. When they ask, Has any one ever witnessed such an event as the transmutation of one species into another? has any experimenter ever accomplished it by artificial means? they do not take a due account of time. In the Fables it is related that when the flowers were one evening conversing, "Our gardener," said the rose to the lily, "will live forever. I have not seen any change in him. The tulip, who died yesterday, told me that she had remarked the same thing; she believed that he must be immortal. I am sure that he never was born."

Two modes of
action.

Two modes have been presented by which we may conceive of the influence of physical agents upon organic forms. Their long persistent action upon the individual may give rise to modifications, developing one part, stunting another; and such variations, being transmitted in an hereditary way, may become firmly fixed at last. Thus a given plant may, in the course of ages, under the influence of unremittingly acting physical conditions, undergo a permanent change, and a really new plant arise as soon as, through the repetitions of successive generations, the modifications have become so thorough, so profound, as to be capable of transmission with certainty. Perhaps this is what has taken place with many of our kitchen-garden plants, of which the special varieties may be propagated by seeds. But there is another mode by which that result may be reached, even if we decline the doctrine of St. Augustine, who, in his work "*De Civitate Dei*," shows how islands may be peopled with animals by "spontaneous generation." All organic forms originally spring from a simple cell, the development of which, as indicated by the final form attained, is manifestly dependent on the physical conditions it has been exposed to during its course. If those conditions change, that final form must change correspondingly; and in this manner, since all organic beings come from the same starting-point—the same cell, as has been said, which helplessly submits to whatever impression may be put upon it—the issue is the same as though a transformation or transmutation had occurred, since the descendant is not like its ancestors. Such a manner of considering these changes is in harmony with our best physiological knowledge, since it does not limit itself to a small portion of the life of an individual, but embraces its whole cycle or career. For the more complete examination of this view I may refer to the second chapter of the second book of my *Physiology*.

Problem of the
modification of
forms.

But here has arisen the inquiry, Does the modification of organic forms depend exclusively on the impressions of external influences, or is it due to a *nisus* or force of development residing in the forms themselves?

Whether we consider the entire organic series in its succession, or the

progress of an individual in his development, the orderly course presented might seem to indicate that the operation is taking place under a law—an orderly progression being always suggestive of the operation of law. But a philosophical caution must, however, be here exercised; for deceptive appearances may lead us into the error of imputing to such a law, impressed by the Creator on the developing organism, that which really belongs to external physical conditions, which, on their part, are following a law of their own. What is here meant may be illustrated by the facts that occur on the habitable surface of a planet suffering a gradual decline of heat. On such a surface a succession of vegetable types might make its appearance, and, as these different types emerged or were eliminated, we might speak of the events as creations and extinctions, and therefore as the acts of God. Or, in the second place, we might refer them to an intrinsic force of development imparted to each germ, which reached in due season its maximum, and then declined and died out; and, comparing each type with its preceding and succeeding ones, the interrelation might be suggested to us of the operation of a controlling law. Or, in the third place, we might look to the external physical condition—the decline of heat—itsself taking place at a determinate rate under a mathematical law, and drawing in its consequences the organic variations observed.

Three solutions of it.

Now the first of these explanations in reality means the arbitrary and unchallengeable will of God, who calls into existence, and extinguishes according to his sovereign pleasure, whatever he pleases; the orderly progression we notice becoming an evidence that his volitions are not erratic, but are according to pure reason. The second implies that there has been impressed upon every germ a law of continuous organic variation—it may have been through the arbitrary fiat of God. The third implies that the successive types owe their appearance and elimination to a physical influence, which is itself varying under a strict mathematical necessity; for the law of cooling, which the circumstances force on our attention, is such a strict mathematical necessity.

If at this point we balance the probabilities of these three explanations, we shall, perhaps, find ourselves biased toward the last, as physiologists have been, because of its rigorous scientific aspect, and should not be surprised to find it supported by an array of facts depending on the principle that the appearance of new forms does not observe a certain inevitable order, or stand in a certain relation to time. From individual development it might seem as if the advancing procession of an organism is such that specific forms ever appear in a certain order one after another, and at certain intervals; but the fallacy of such a conclusion is apparent when we attend to the orderly procedure of the physical conditions to which the developing organism is exposed. The passing through a given form at a given epoch is due to the

Their relative probability.

Development is in place, not in time. relation being to space and its conditions, not to time. And so in the life of the earth, if development were according to time, we should have an orderly succession of grades as the earth grew older, and in all localities, at a given moment, the contemporary organisms would be similar; but if it were according to space, that rigorous procedure would not occur; in its stead we should have a broken series, the affiliation being dependent on the secularly continuous variation of the physical condition.

Now this was discovered to be the case. For instance, throughout the northern hemisphere, during the Tertiary period, an extinct placental Fauna was contemporaneous with an extinct marsupial Fauna in Australia. If the development was proceeding according to time, by an innate natus, and not according to external influences, the types for the same epoch in the two hemispheres should be the same; if under external influences, irrespective of time, they should be, as they were found to be, different.

If true-going clocks, which owe their motion to their own interior mechanism, were started in all countries of the earth at the same instant, they would strike their successive hours simultaneously. But sun-dials, which owe their indications to an exterior cause, would in different longitudes tell different times, or, when the needful light was absent, their shadows would altogether fail. They count no hours but those that are serene.

As to the vegetable kingdom, the principles that hold for the animal again apply. At a very early period, even before the deposit of the coal, all the distinct forms of vegetable tissue were in existence, and nothing to prevent, so far as time was concerned, their being united together all over the world into similar structural combinations. And, in truth, as the botany of the Coal period proves, there was a far more extensive sameness than we see at present, simply because the distribution of heat was more uniform and climates were less marked. But from this point the diversity of form in climate distribution becomes more and more conspicuous, though we must descend, perhaps, as late as the Wealden before we discover any flowering plants, except Gymnosperms, as Conifers and Cycads. All this is what might be expected on the doctrine of external influence, but not on the doctrine of an innate and interior developmental force.

If, at this stage, attention is once again turned to the animal kingdom, we find our opinion confirmed. The diminution of carbonic acid in the atmosphere, the deposit of coal in the earth, the precipitation of carbonate of lime in the sea, the disengagement of an increased quantity of oxygen in the air, and the reduction of atmospheric pressure—different effects contemporaneously occurring—were soon followed by the consequence which they made possible—the appearance of hot-blood-

ed mammals. Perhaps those first arising might, like our hibernates, lead a sluggish existence, with imperfect respiration; but, as the media improved and the temperature declined, more vigorous forms of life emerged, though we have probably to descend to the Tertiary epoch before we meet with birds, which of all animals have the most energetic respiration, and possess the highest heat.

As with the atmosphere, so with the sea. Variations in its composition must control the organisms it contains. With its saline constituents its life must change. Before the sunlight had removed from the atmosphere so much of its carbonic acid, decomposing it through the agency of plants, the weight of carbonate of lime held in solution by the highly carbonated water was far greater than was subsequently possible, and the occurrence of limestone became a necessary event. With such a disturbance in the composition of the sea-water, its inhabiting organisms were necessarily disturbed. And so again, subsequently, when the solar heat began to preponderate on the surface over the subsiding interior heat, the constitution of the sea-water, as respects its salinity, was altered through difference of evaporation in different latitudes, an effect inevitably making a profound impression on marine animal life.

Supported by the facts that have been mentioned respecting the later fossils of Australia and Brazil, and their analogy to forms now existing in those countries, much stress was laid on the hereditary transmission of structure, and hence the inference was drawn that such examples are of a mixed nature, depending in part on external agency, in part on an interior developmental force. From marsupial animals, marsupials will issue; from placental ones, those that are placental. But here, perhaps, an illustration drawn from the inorganic kingdom may not be without interest and use. Two pieces of carbonate of lime may be rolling among the pebbles at the bottom of a brook, one perpetually splitting into rhomboids, the other into arragonitic prisms. The fragments differ from one another not only thus in their crystalline form, but in their physical qualities, as density and hardness, and in their optical qualities also. We might say that the calc-spar crystals gave birth to calc-spar crystals, and the arragonitic to arragonite; we might admit that there is an interior propensity, an intrinsic tendency to produce that result, just as we say that there is a tendency in the marsupial to engender a marsupial; but if, in our illustration, we look for the cause of that cause, we find it in a physical impression long antecedently made, that the carbonate of lime, crystallizing at 212° Fahr., produces arragonite, and, at a lower temperature, calc-spar; and that the physical impression thus accomplished, though it may have been thousands of years ago, was never cast off, but perpetually manifested itself in all the future history of the two samples. That which we

Cold and hot
blooded animals.

The organisms
of the sea.

Nature of hereditary
transmission.

sometimes speak of as hereditary transmission, and refer to an interior property, peculiarity, or force, may be nothing more than the manifestation of a physical impression long antecedently made.

In the last place, the idea of an intrinsic force of development is in connection with time and a progression, and only comes into prominence when we examine a limited portion or number of the things under consideration. The earth, though very beautiful, is very far from being perfect. The plants and animals we see are only the wrecks of a broken series, an incomplete, and, therefore, unworthy testimonial of the Almighty power. We should judge very inadequately of some great author if only here and there a fragmentary paragraph of his work remained; and so, in the book of organization, we must combine what is left with what we can recover from past ages and buried strata before we can rise to a comprehension of the grand argument, and intelligibly grasp the whole work.

Of that book it is immaterial to what page we turn. It tells us of effects of such magnitude as imply prodigiously long periods of time for their accomplishment. Its moments look to us as if they were eternities. What shall we say when we read in it that there are fossiliferous rocks which have been slowly raised ten thousand feet above the level of the sea so lately as since the commencement of the Tertiary times; that the Purbeck beds of the upper oolite are in themselves the memorials of an enormous lapse of time; that, since a forest in a thousand years can scarce produce more than two or three feet of vegetable soil, each dirt-bed is the work of hundreds of centuries. What shall we say when it tells us that the delta of the Mississippi could only be formed in many tens of thousands of years, and yet that is only as yesterday when compared with the date of the inland terraces; that the recession of the Falls of Niagara from Queenstown to the present site consumed thirty thousand years; that if the depression of the carboniferous strata of Nova Scotia took place at the rate of four feet in a century, there were demanded 375,000 years for its completion—such a movement in the upward direction would have raised Mont Blanc; that it would take as great a river as the Mississippi two millions of years to convey into the Gulf of Mexico as much sediment as is found in those strata. Such statements may appear to us, who with difficulty shake off the absurdities of the patristic chronology, wild and impossible to be maintained, and yet they are the conclusions that the most learned and profound geologists draw from their reading of the book of Nature.

Thus, as respects the age of the earth and her relations in time, we approach the doctrine of the Orientals, who long ago ascertained that the scales of time and of space correspond to each other. More fortunate, they have had but one point of resistance to en- stance they met with dissimulation, and

The broken or-
ganic chain.

Enormous
age of the
earth.

Summary as
respects the
world in time.

not in an open way. They attempted to conceal the tendency of their doctrine by allying or affiliating it with detected errors. According to their national superstition, the earth is supported on the back of an elephant, and this on a succession of animals, the last of which is a tortoise. It is not to be supposed that the Brahmans, who wrote commentaries on the *Surya Siddhanta*, should for a moment have accepted these preposterous delusions—that was impossible for such great geometers; yet led, perhaps, by a wish to do nothing that might disturb public feeling, they engaged in the hopeless task of showing that their profound philosophical discoveries were not inconsistent with the ancient traditions; that a globular and revolving earth might be sustained on a descending succession of supporting beasts. But they had the signal advantage over us that those popular traditions conceded to them that limitless time for which we have had to struggle.

The progression of life on the surface of our planet is under the guidance of preordained and resistless law—it is affiliated with material and correspondingly changing conditions. It suggests that the succession of organic forms which, in a due series, the earth's surface in the long lapse of time has presented, is the counterpart of a like progress which other planets in the solar system exhibit in myriads of years, and leads us to the conception of the rise, development, and extinction of a multiplicity of such living forms in other systems—a march of life through the universe, and its passing away.

Magnitudes and times, therefore, go parallel with one another. With the abandonment of the geocentric theory, and of the doctrine of the human destiny of the universe, have vanished the unworthy hypotheses of the recent date of creation and the approaching end of all things. In their stead are substituted more noble ideas. The multiplicity of worlds in infinite space leads to the conception of a succession of worlds in infinite time. This existing universe, with all its splendors, had a beginning, and will have an end; it had its predecessors, and will have its successors; but its march through all its transformations is under the control of laws as unchangeable as destiny. As a cloud, which is composed of myriads of separate and isolated spherules of water, so minute as to be individually invisible, on a summer's afternoon changes its aspect and form, disappearing from the sky, and being replaced in succeeding hours by other clouds of a different aspect and shape, so the universe, which is a cloud of suns and worlds, changes in the immensity of time its form and fashion, and that which is contemporary with us is only an example of countless combinations of a like kind, which in ancient times have one after another vanished away. In periods yet to come the endless succession of metamorphoses will still go on, a series of universes to which there is no end.

The life of the universe.

Multiplicity of worlds implies succession of worlds.

CHAPTER XXIV.

THE EUROPEAN AGE OF REASON—(Continued).

THE NATURE AND RELATIONS OF MAN.

Position of Man according to the Heliocentric and Geocentric Theories.

OF ANIMAL LIFE.—*The transitory Nature of living Forms.—Relations of Plants and Animals.—Animals are Aggregates of Matter expending Force originally derived from the Sun.*

THE ORGANIC SERIES.—*Man a Member of it.—His Position determined by Anatomical and Physiological Investigation of his Nervous System.—Its triple Form: Automatic, Instinctive, Intellectual.*

The same progressive Development is seen in individual Man, in the entire animal Series, and in the Life of the Globe.—They are all under the Control of an eternal, universal, irresistible Law.

The Aim of Nature is intellectual Development, and human Institutions must conform thereto.

Summary of the Investigation of the Position of Man.—Production of Inorganic and Organic Forms by the Sun.—Nature of Animals and their Series.—Analogies and Differences between them and Man.—The Soul.—The World.

WHEN the ancient doctrine of the plurality of worlds was restored by Bruno, Galileo, and other modern astronomers, the resistance it encountered was mainly owing to its anticipated bearing on the nature and relations of man. It was said, if round our sun, as a centre, there revolve so many planetary bodies, experiencing the changes of summer and winter, day and night—bodies illuminated by satellites, and perhaps enjoying twilight and other benefits such as have been conferred on the earth—shall we not consider them the abodes of accountable, perhaps of sinful, beings like ourselves? Nay, more; if each of the innumerable fixed stars is, as our sun, a central focus of light, attended by dark and revolving globes, is it not necessary to admit that they also have their inhabitants? But among so many families of intelligent beings, how is it that we, the denizens of an insignificant speck, have alone been found worthy of God's regard?

It was this reasoning that sustained the geocentric theory, and made the earth the centre of the universe, the most noble of created things; the sun, the moon, the stars, being only ministers for the service of man.

But, like many other objections urged in that memorable conflict, this was founded on a misconception, or, rather, on imperfect knowledge. There may be an infinity of worlds placed under the mechanical relations alluded to, but there may not be one among them that can be the abode of life. The physical conditions under which organization is possible are so numerous and so strictly limited that the chances are

In a reli-

to one against their conjoined occurrence. we are greatly indebted to Geology for

The apparent position of man on the heliocentric theory.

The fallacy of objections to that theory.

the light it has cast on this objection. It has taught us that during inconceivable lapses of time our earth itself contained no living thing. These were those præorganic ages to which reference was made in the last chapter. Then, by slow degrees, as a possibility for existence occurred, there gradually emerged one type after another. It is but as yesterday that the life of man could be maintained.

Evidence furnished by Geology.

Only in the presence of special physical conditions can an animal exist. Even then it is essentially ephemeral. The life of it, as a whole, depends on the death of its integrant parts. In a waterfall, which maintains its place and appearance unchanged for many years, the constituent portions that have been precipitated headlong glide finally and forever away. For the transitory matter to exhibit a permanent form, it is necessary that there should be a perpetual supply and also a perpetual removal. So long as the jutting ledge over which the waters rush, and the broken gulf below that receives them, remain unchanged, the cataract presents the same appearance. But variations in them mould it into a new shape; its color changes with a clear or a cloudy sky; the rainbow seen in its spray disappears when the beams of the sun are withdrawn.

The transitory nature of living forms.

So in that collection of substance which constitutes an animal; whatever may be its position, high or low, in the realm of life, there is a perpetual introduction of new material and a perpetual departure of the old. It is a form, rather than an individual, that we see. Its permanence altogether depends on the permanence of the external conditions. If they change it also changes, and a new form is the result.

An animal is therefore a form through which material substance is visibly passing, and suffering transmutation into new products. In that act of transmutation force is disengaged. That which we call its life is the display of the manner in which the force thus disengaged is expended.

Characteristics of animal life.

A scientific examination of animal life must include two primary facts. It must consider whence and in what manner the stream of material substance has been derived, in what manner and whither it passes away. And, since force can not be created from nothing, and is in its very nature indestructible, it must determine from what source that which is displayed by animals has been obtained, in what manner it is employed, and what disposal is made of it eventually.

Matter and force.

The force thus expended is originally derived from the sun. Plants are the intermedium for its conveyance. The inorganic material of a saline nature entering into their constitution is obtained from the soil in which they grow, as is also, for the most part, the water they require; but their organic substance is derived from the surrounding atmosphere, and hence it is strictly true that they are condensations from the air.

Force is derived from the sun.

These statements may be sufficiently illustrated, and the relation between plants and animals shown, by tracing the course of any one of the ingredients entering into the vegetable composition, and derived, as has been said, from the air. For this purpose, if we select their chief solid element, carbon, the remarks applicable to the course it follows will hold good for other accompanying elements. It is scarcely necessary to embarrass the brief exposition of vegetable life now to be given by any historical details, since these will come with more propriety subsequently. It is sufficient to mention that the chemical explanations of vegetable physiology rest essentially on the discovery of oxygen gas by Priestley, of the constitution of carbonic acid by Lavoisier, and of water by Cavendish and Watt.

While the sun is shining, the green parts of plants, especially the leaves, decompose carbonic acid, one of the ingredients of the atmospheric air. This substance is composed of two elements, carbon and oxygen; the former is appropriated by the plant, and enters into the composition of elaborated or descending sap, from which forthwith organic products, such as starch, sugar, wood-fibre, acids, and bases are made. The other element, the oxygen, is for the most part refused by the plant, and returns to the air. As the process of decomposition goes on, new portions of carbonic acid are presented through mechanical movements, the trembling of the leaf, breezes, and currents rising from the foliage warmed by the solar beams giving place to other cool currents that set in below.

The action of a plant upon the air is therefore the separation of combustible material from that medium. Carbon is thus obtained from carbonic acid; from water, hydrogen. Plant life is chemically an operation of reduction, for in like manner ammonia is decomposed into its constituents, which are nitrogen and hydrogen; and sulphuric and phosphoric acids, which, like ammonia, may have been brought into the plant through its roots in the form of salt bodies, are made to yield up the oxygen with which they had been combined, and their sulphur and phosphorus, combustible elements, are appropriated.

Every plant, from the humblest moss to the oak of a thousand years, is thus formed by the sun of material obtained from the air—combustible material once united with oxygen, but now separated from that body. It is of especial importance to remark that in this act of decomposition, force, under the form of light, has disappeared, and become incorporated with the combustible, the organizing material. This force is surrendered again, or reappears whenever the converse operation, combination with oxygen, occurs.

Vegetable products thus constitute a magazine in which force is stored up and preserved for any time. Hence they are adapted for animal food and warmth. The heat evolved in the

Mode in which
plants obtain
material sub-
stance.

Action of a
plant on the
air.

Composition
and resolution
of matter and
force.

combustion of coal in domestic economy was originally light from the sun appropriated by plants in the Secondary geological times, and locked up for untold ages. The sun is also the source from which was derived the light obtained in all our artificial operations of burning gas, oil, fat, wax, for the purposes of illumination.

My own experiments have proved (Physiology, p. 461) that it is the light of the sun, in contradistinction to the heat, which occasions the decomposition of carbonic acid, furnishing carbon to plants and oxygen to the atmosphere. But such is the relation of the so-called imponderable principles of chemistry to each other, and their mutual convertibility, that that which has disappeared in performing its function as light may reappear as heat or electricity, or in the production of some mechanical effect.

Food is used by all animals for the sake of the force it thus contains, the remark applying to the carnivora as well as the herbivora. In both cases the source of supply is the vegetable kingdom, indirectly or directly. The plant is thus indispensable to the animal. It is the collector and preserver of that force the expenditure of which constitutes the special display of animal life.

From this point of view, animals must therefore be considered as machines, in which force, obtained as has been described, is utilized. The food they take, or the tissue that has been formed from it, is acted upon by the air they breathe, and undergoes partial or total oxydation, and now emerges again, in part as heat, in part as nerve-force, in some few instances in part as light or electricity, the force that originally came from the sun.

There is, therefore, a cycle or revolution through which material particles suitable for organization incessantly run. At one moment they exist as inorganic combinations in the air or the soil, then as portions of plants, then as portions of animals, then they return to the air or soil again to renew their cycle of movement. The metamorphoses feigned by the poets of antiquity have hence a foundation in fact, and the vegetable and animal, the organic and inorganic worlds are indissolubly bound together. Plants are reducing, animals oxydizing, machines. Plants form, animals destroy.

Thus, by the light of the sun, the carbonic acid of the atmosphere is decomposed—its oxygen is set free, its carbon furnished to plants. The products obtained serve for the food of animals, and in their systems the carbon is reoxydized by the air they respire, and, resuming the condition of carbonic acid, is thrown back into the atmosphere in the breath, ready to be decomposed by the sunlight once more, and run through the same cycle of changes again. The growth of a plant and the respiration of an animal are dependent on each other.

Material particles are thus the vehicles of force. They undergo no

The duration of matter and imperishability of force. destruction. Chemically speaking, they are eternal. And so, likewise, force never deteriorates or becomes lessened. It may assume new phases, but it is always intrinsically unimpaired. The only changes it can exhibit are those of aspect and of distribution; of aspect, as electricity, affinity, light, heat; of distribution, as when the diffused aggregate of many sunbeams is concentrated in one animal form.

It is but little that we know respecting the mutations and distribution of force in the universe. We can not tell what becomes of that which has characterized animal life, though of its perpetuity we may be assured. It has no more been destroyed than the material particles of which such animals consist. They have been transmuted into new forms—it has taken on a new aspect. The sum total of matter in the world is invariable; so, likewise, is the sum total of force.

Theory of Averrhoes. These conclusions resemble in many respects those of the philosophy of Averrhoes, but they are free from the heresy which led the Lateran Council, under Leo X., to condemn the doctrines of the great Spanish Mohammedan. The error of Averrhoes consisted in this, that he confounded what is here spoken of under the designation of force with the psychical principle, and falsely applied that which is true for animals to the case of man, who is to be considered as consisting of three essentially distinct parts—a material body, upon which operate various physical forces, guided and controlled by an intelligent soul.

In the following paragraphs the distinction here made is brought into more striking relief.

Anatomical mode of determining position in the animal series. The station of any animal in the organic series may be determined from the condition of its nervous system. To this observation man himself is not an exception. Indeed, just views of his position in the world, of the nature of his intellect and mental operations, can not be obtained except from the solid support afforded by Anatomy. The reader has doubtless remarked that, in the historical sketch of the later progress of Europe given in this book, I have not referred to metaphysics, or psychology, or mental philosophy. Cultivated as they have been, it was not possible for them to yield any other result than they did among the Greeks. A lever is no mechanical power unless it has a material point of support. It is only through the physical that the metaphysical can be discovered.

The uselessness of the metaphysical sciences. An exposition of the structure, the physical forces, and the intellectual operations of man must be founded on anatomy. We can only determine the methods of action from the study of the mechanism, and the right interpretation of that mechanism can only be ascertained from the construction of its parts, from observations of the manner in which they are developed, from comparison

Necessity of resorting to Anatomy and Physiology.

sons with similar structures in other animals, not rejecting even the lowest, and from an investigation of their habits and peculiarities. Believing that, in the present state of science, doctrines in psychology, unless they are sustained by evidence derived from anatomy and physiology, are not to be relied on, I have not thought it necessary to devote much space to their introduction. They have not taken a part in the recent advances of humanity. They belong to an earlier social period, and are an anachronism in ours. I have referred to these points heretofore in my work on Physiology, and perhaps shall be excused the following extract (p. 259):

"The study of this portion of the mechanism of man brings us therefore in contact with metaphysical science, and some of its fundamental dogmas we have to consider. Nearly all philosophers who have cultivated in recent times that branch of knowledge, have viewed with apprehension the rapid advances of physiology, foreseeing that it would attempt the final solution of problems which have exercised the ingenuity of the last twenty centuries. In this they are not mistaken. Certainly it is desirable that some new method should be introduced, which may give point and precision to whatever metaphysical truths exist, and enable us to distinguish, separate, and dismiss what are only vain and empty speculations.

*Solution of
psychologi-
cal ques-
tions.*

"So far from philosophy being a forbidden domain to the physiologist, it may be asserted that the time has now come when no one is entitled to express an opinion in philosophy except he has first studied physiology. It has hitherto been to the detriment of truth that these processes of positive investigation have been repudiated. If from the construction of the human brain we may demonstrate the existence of a soul, is not that a gain? for there are many who are open to arguments of this class on whom speculative reasoning or a mere dictum fall without any weight. Why should we cast aside the solid facts presented to us by material objects? In his communications throughout the universe with us, God ever materializes. He equally speaks to us through the thousand graceful organic forms scattered in profusion over the surface of the earth, and through the motions and appearances presented by the celestial orbs. Our noblest and clearest conceptions of his attributes have been obtained from these material things. I am persuaded that the only possible route to truth in mental philosophy is through a study of the nervous mechanism. The experience of 2500 years, and the writings of the great metaphysical intellects attest, with a melancholy emphasis, the vanity of all other means.

*Uncertainty of
metaphysics.*

"Whatever may be said by speculative philosophers to the contrary, the advancement of metaphysics is through the study of physiology. What sort of a science would optics have been among men who had purposely put out their own eyes? What would have been the prog-

ress of astronomy among those who disdained to look at the heavens. Yet such is the preposterous course followed by the so-called philosophers. They have given us imposing doctrines of the nature and attributes of the mind in absolute ignorance of its material substratum. Of the great authors who have thus succeeded one another in ephemeral celebrity, how many made themselves acquainted with the structure of the human brain? Doubtless some had been so unfortunate as never to see one! Yet that wonderful organ was the basis of all their speculations. In voluntarily isolating themselves from every solid fact which might serve to be a landmark to them, they may be truly said to have sailed upon a shoreless sea from which the fog never lifts. The only fact they teach us with certainty is, that they know nothing with certainty. It is the inherent difficulty of their method that it must lead to unsubstantial results. What is not founded on a material substratum is necessarily a castle in the air."

Considering thus that scientific views of the nature of man can only be obtained from an examination of his nervous system, and that the right interpretation of the manner of action of that system depends on the guiding light of comparative anatomy and physiology, I shall, in the following exposition, present the progress of discovery on those principles.

In those low tribes of life which show the first indications of a nervous system, its operation is purely mechanical. An external impression, as a touch, made upon animals of that kind, is instantly answered to by a motion which they execute, and this without any manifestation of will or consciousness. The phenomenon is exactly of the same kind as in a machine, of which, if a given lever is touched, a motion is instantly produced.

In any nervous system there are two portions anatomically distinct. They are, 1st, the fibrous; 2d, the vesicular. It may be desirable to describe briefly the construction and functions of each of these portions. Their conjoint action will then be intelligible.

1st. A nerve fibre consists essentially of a delicate thread—the axis filament, as it is called—enveloped in an oil-like substance, which coagulates or congeals after death. This, in its turn, is inclosed in a thin investing sheath or membranous tube. Many such fibres bound together constitute a nerve.

The function of such a nerve fibre is indisputably altogether of a physical kind, being the conveyance of influences from part to part. The axis filament is the medium along which the translation occurs, the investing sheath serving the purpose of confining or insulating it, so as to prevent any extraneous influences. Such a construction is the exact counterpart of a metallic wire in which the transmission of electricity is effected.

silk, the current being thus compelled to move in the wire without any lateral escape. Of such fibres, some convey their influences to the interior, and hence are called centripetal; some convey them to the exterior, and hence are called centrifugal. No anatomical difference in the structure of the two has, however, thus far been discovered. As in a conducting wire the electrical current moves in a progressive manner with a definite velocity, so in a nerve filament the influence advances progressively at a rate said to be dependent on the temperature of the animal examined. It seems in the cold-blooded to be much slower than in the hot. It has been estimated in the frog at eighty-five feet in a second; in man at two hundred feet—an estimate probably too low.

The fibres thus described are of the kind designated by physiologists as the cerebro-spinal; there are others, passing under the name of the sympathetic, characterized by not possessing the investing medullary substance. In color they are yellowish-gray; but it is not necessary here to consider them further.

2d. The other portion of the nervous structure is the vesicular. As its name imports, it consists of vesicles filled with a gray granular material. Each vesicle has a thickened spot or nucleus upon it, and appears to be connected with one or more fibres. If the connection is only with one, the vesicle is called unipolar; if with two, bipolar; if with many, multipolar or stellate. Every vesicle is abundantly supplied with blood.

Structure of a
nerve vesicle.

As might be inferred from its structure, the vesicle differs altogether from the fibre in function. I may refer to page 268 of my Physiology for the reasons which have led to the inference that these are contrivances for the purposes of permitting influences that have been translated along or confined within the fibre to escape and diffuse themselves in the gray granular material. They also permit influences that are coming through many different channels into a multipolar vesicle to communicate or mix with one another, and combine to produce new results. Moreover, in them influences may be long preserved, and thus they become magazines of force. Combined together, they constitute ganglia or nerve centres, on which, if impressions be made, they do not necessarily forthwith die out, but may remain gradually declining away for a long time. Thus is introduced into the nervous mechanism the element of time, and this important function of the nerve vesicle lies at the basis of memory.

Function of a
nerve vesicle.

It has been said that the vesicular portion of the nerve mechanism is copiously supplied with blood. Indeed, the condition indispensably necessary for its functional activity is waste by oxydation. Arterial vessels are abundantly furnished to insure the necessary supply of aerated blood, and veins to carry away the wasted products of decay. Also, through the former, the necessary materials for re-

Physiological condition of nerve action is nerve waste.

pair and renovation are brought. There is a definite waste of nervous substance in the production of a definite mechanical or intellectual result—a material connection and condition that must never be overlooked. Hence it is plain that unless the repair and the waste are synchronously equal to one another, periodicities in the action of the nervous system will arise, this being the fundamental condition connected with the physical theories of sleep and fatigue.

The statements here made rest upon two distinct forms of evidence. In part they are derived from an interpretation of anatomical structure, and in part from direct experiment, chiefly by the aid of feeble electrical currents. The registering or preserving action displayed by a ganglion may be considered as an effect, resembling that of the construction known as Ritter's secondary piles.

It will not suit my purpose to offer more than the simplest illustration of the application of the foregoing facts. When an impression, either by pressure or in any other way, is made on the exterior termination of a centripetal fibre, the influence is conveyed with a velocity such as has been mentioned into the vesicle to which that fibre is attached, and thence, going forth along the centrifugal fibre, may give rise to motion through contraction of the muscle to which that fibre is distributed. An impression has thus produced a motion, and to the operation the designation of reflection is commonly given. This reflection takes place without consciousness. The three parts—the centripetal fibre, the vesicle, and the centrifugal fibre—conjointly constitute a simple nervous arc.

A repetition of these arcs, each precisely like all the others, constitutes the first step toward a complex nervous system. Their manner of arrangement is necessarily subordinated to the general plan of construction of the animals in which they occur. Thus, in the Radiates it is circular; in the Articulates, linear, or upon an axis. But, as the conditions of life require contemporaneity of motion in the different parts, these nerve arcs are not left isolated or without connection with each other. As it is anatomically termed, they are commissured, nerve fibres passing from each to its neighbors, and each is thus brought into sympathy with all the others.

The next advance is a very important one, for it indicates the general plan on which the nervous system is to be developed: it is the dedication of special nerve arcs for special duties. Thus, in the higher articulates and mollusks, there are such combinations expressly for the purpose of respiration and deglutition. Their action is altogether of the reflex kind; it takes place without consciousness. These ganglia are commissured for the sake of sympathetic action, and frequently several of them are coalesced for the sake of package.

This principle of dedication to special uses is carried out in the intro-

Reflex action
of the nerv-
ous system.

Gradual com-
plexity of the
nervous sys-
tem.

First appear-
ance of spe-
cial ganglia.

duction of ganglia intended to be affected by light, or sounds, or odors. The impressions of those agencies are carried to the ganglion by its centripetal fibres. Such ganglia of special action are most commonly coalesced together, forming nervous masses of conspicuous size; they are always commissured with those for ordinary motions, the action being reflex, as in the preceding case, though of a higher order, since it is attended with consciousness.

Such being the elementary construction of a nervous system, it is plain that animal tribes in which it exists in no higher degree of complexity must be merely automata. In this remark insects must be included, for the instinct they display is altogether of a mechanical kind, and, so far as they are concerned, without design. Their actions are uniformly alike; what one does under given circumstances, under the same circumstances another will certainly do. They are incapable of education, they learn nothing by experience, and the acts they are engaged in they accomplish as well at the first trial as ever after.

Of parts like those thus described, and of others of a higher order, as will be presently seen, is the most complex nervous system, even that of man, composed. It might, perhaps, be expected that for the determination of the duty of each part of such complex systems the physiologist must necessarily resort to experiment, observing what functions have been injured or destroyed when given portions have been removed by his knife. At the best, however, evidence of that kind must be very unsatisfactory, on account of the shock the entire system receives in vivisections, and, accordingly, artificial evidence can, for the most part, be used only in a corroborative way. But, as Cuvier observed, the hand of Nature has prepared for us these very experiments without that drawback. The animal series, as we advance upward from its lowest member, proves to us what is the effect of the addition of new parts in succession to a nervous system, as also does any individual thereof in its successive periods of development. It is one of the most important discoveries of modern physiology that, as respects their nervous system, we can safely transfer our reasonings and conclusions from the case of the lowest to that of the highest animal tribes.

The articulata present structures and a mode of action illustrating in a striking manner the nervous system of man. Lengthwise upon their ventral region is laid a double cord, with ganglia, like a string of beads; sometimes the cords are a little distance apart, but more generally they are coalesced, each pair of ganglia being fused into one. For every segment of the body a pair is supplied, each pair controlling its own segment, and acting toward it automatically, each also acting like any of the others. But in the region of the head there is a special pair, the cephalic ganglia, receiving fibres from the eyes and other

They are automatic mechanisms.

Evidence to be used in these investigations.

First introduction of governing ganglia.

organs of sense. From them proceed filaments to the ventral cord, establishing communications with every segment. So every part has two connections, one with its own ventral ganglia, and one with the cephalic.

It is not difficult to determine experimentally the functions of the ventral ganglia and those of the cephalic. If a centipede be decapitated, its body is still capable of moving, the motion being evidently of a reflex kind, originating in the pressure of the legs against the surface on

But thus far actions are only instinctive.

which they rest. The ventral cord, with its ganglia, is hence purely an automatic mechanism. But if, in making the decapitation, we leave a portion of the body in connection with the head, we recognize very plainly that the cephalic ganglia are exercising a governing power. In the part from which they have been cut off the movement is forward, regardless of any obstacle; in that to which they are attached there are modifications in the motions, depending on sight or other special senses; obstacles are avoided, and a variety of directions pursued. Yet still the actions are not intelligent, only instinctive. The general conclusion therefore is, that the cephalic ganglia are of a higher order than the ventral, the latter being simply mechanical, the former instinctive; but thus far there is no trace of intelligence.

In man these typical parts are all present, and discharge the functions specified. His spinal cord answers to the ventral cord of the

Nervous anatomy of vertebrates, as man.

articulates. It has its lateral communications in the same way, and each segmental portion presents the same reflex action. Toward its upper part it dilates to form the medulla oblongata, sending forth nerves for respiration and deglutition. Of these the action is still reflex, as is proved by the involuntary movements of respiration and

Their automatic apparatus.

Their instinctive apparatus.

deglutition. A portion of food being placed in the pharynx, contraction instantly occurs, the will having no kind of control over the act of swallowing. Above or in front of this enlargement is a series of ganglia, to which converge the nerves of special sense—of hearing, sight, smell; these are, therefore, the equivalents of the cephalic ganglia of insects, their function being also the same. In the lowest vertebrates, as in the amphioxus, the nervous system consists of nothing more. It may therefore be said to have only two parts—the cord and the sensory ganglia, and to have two functions—the automatic, attributable to the former, and the instinctive, attributable to the latter.

But as we advance from the low vertebrates upward in the animal scale, we begin to detect new organs; on the medulla oblongata a cerebellum, and on the sensory ganglia a cerebrum. From this moment the animal displays reasoning powers, its intelligence becoming more strongly marked as the development of the new organs is greater.

Their intellectual apparatus.

It remains to determine with exactness the function of one of these new parts, the cerebrum; the other portion, the cerebellum, being of minor interest, and connected, probably, with the locomotive apparatus. For the same reason it is unnecessary to speak of the sympathetic nerve, since it belongs to the apparatus of organic life. Confining our attention, therefore, to the true brain, or cerebrum, we soon recognize that the intelligence of an animal is, in a general manner, proportional to the relative size of this organ as compared with the sensory ganglia. We are also struck with the fact that the cerebrum does not send forth to other portions any independent fibres of its own, nor does it receive any from them, its only means of communication being through the parts that have been described—that is to say, through the sensory and automatic apparatus. The cerebrum is therefore a mechanism of a higher order, and its relationship with the thalami optici and corpora striata indicate the conditions of its functions. It can only receive impressions which have come through them, and only act upon the body through their intermedium. Moreover, as we ascend the animal scale, we find that these cerebral parts not only increase in size, but likewise, in their turn, give rise to offshoots; secondary lobes emerging posteriorly on the primary ones, and, in due season, tertiary lobes posteriorly on the secondary. To these, in human anatomy, the designations of anterior, middle, and posterior lobes have been respectively given. In proportion as this development has proceeded, the intellectual qualities have become more varied and more profound.

Functions of the brain.

Its relations to the instinctive and automatic portions.

Its secondary and tertiary lobes.

The relation of the cerebrum to the cranio-spinal axis is manifested by the circumstance that the latter can act without the former. In sleep the cerebrum is, as it were, torpid, but respiration, deglutition, and other reflex actions go on. If we touch the palm of a sleeping infant our finger is instantly grasped. But, though the axis can work without the cerebrum, the cerebrum can not work without the axis. Illustrations of these truths may be experimentally obtained. An animal from which the cerebrum has been purposely removed may be observed to perform actions automatic and instinctive, but never intelligent; and that there is no difference between animals and man in this respect is demonstrated by the numerous instances recorded in the works of medicine and surgery of injuries by accident or disease to the human nervous system, the effects corresponding to those artificially produced in experiments on animals. This important observation, moreover, shows that we may with correctness use the observations made on animals in our investigations of the human system.

Action of the spinal cord alone.

Conjoint action of the brain and cord.

Thus, then, the matter stands. In the nervous system of man our attention is especially demanded by three essentially distinct parts—the

Three distinct parts of the nervous system of man. spinal cord, the sensory ganglia, and the cerebrum. Of the first, the spinal cord, the action is automatic; by its aid we can walk, without bestowing a thought on our movements, from place to place; by it we swallow involuntarily; by it we respire unconsciously. The second portion, the sensory ganglia, is, as we have seen, the counterpart of the cephalic ganglia of invertebrates; it is the place of reception of sensuous impressions and the seat of consciousness. To these ganglia instinct is to be referred. Their function is not at all impaired by the cerebrum superposed upon them. The third portion, the cerebrum, is anatomically distinct. It is the seat of ideas. It does not directly give rise to motions, being obliged to employ for that purpose its intermediate automatic associated apparatus. In this realm of ideas thoughts spring forth suggestively from one another in a perpetual train or flux, and yet the highest branch of the nervous mechanism still retains traces of the modes of operation of the parts from which it was developed. Its action is still often reflex. Reason is not always able to control our emotions, as when we laugh or weep in spite of ourselves, under the impression of some external incident. Nay, more; the inciting cause may be, as we very well know, nothing material—nothing but a recollection, an idea—and yet it is enough. But these phenomena are perhaps restricted to the first or anterior lobes of the brain, and, accordingly, we remark them most distinctly in children and in animals. As the second and third lobes begin to exercise their power, such effects are brought under control.

There is, therefore, a regular progression, a definite improvement in the nervous system of the animal series, the plan never varying, but being persistently carried out, and thus offering a powerful argument for relationship among all those successively improving forms, an observation which becomes of the utmost interest to us in its application to the vertebrates. In the amphioxus, as has been said, the cranio-spinal axis alone exists; the Cyclostome fishes are but a step higher. In fishes the true cerebrum appears at first in an insignificant manner, a condition repeated in the early embryonic state both of birds and mammals. An improvement is made in reptiles, whose cerebral hemispheres are larger than their optic lobes. As we advance to birds, a farther increase occurs; the hemispheres are now of nearly sufficient dimensions to cover over those ganglia. In the lower mammals there is another step, yet not a very great one. But from the anterior lobes, which thus far have constituted the entire brain, there are next to be developed the middle lobes. In the Rodents the progress is still continued, and in the Ruminants and Pachyderms the convolutions are well marked. In the higher carnivora and in the primate series the anterior or tertiary lobes appear. The pas-

Three distinct parts of the nervous system of man.

They are the automatic, the instinctive, the intellectual.

Dominating control of the latter.

Progressive nervous development in the animal series.

It attains its maximum in man.

sage from the anthropoid apes to man brings us to the utmost development thus far attained by the nervous system. The cerebrum has reached its maximum organization by a continued and unbroken process of development.

This orderly development of the nervous system in the animal series is recognized again in the gradual development of the individual man. The primitive trace, as it faintly appears in the germinal membrane, marks out the place presently to be occupied by the cranio-spinal axis, and, that point of development gained, man answers to the amphioxus. Not until the twelfth week of embryonic life does he reach the state permanently presented by birds; at this time the anterior lobes are only perceptible. In four or six weeks more the middle lobes are evolved posteriorly on the anterior, and, finally, in a similar manner, the tertiary or posterior ones are formed. And thus it appears that, compared with the nervous system of other animals, that of man proceeds through the same predetermined succession of forms. ^{The same progressive development occurs in each individual man.} Theirs suffers an arrest, in some instances at a lower, in some at a higher point, but his passes onward to completion.

But that is not all. The biography of the earth, the life of the entire globe, corresponds to this progress of the individual, to this orderly relation of the animal series. ^{It occurs again in the entire life of the globe.} Commencing with the oldest rocks that furnish animal remains, and advancing to the most recent, we recognize a continual improvement in construction, indicated by the degree of advancement of the nervous system. The earliest fishes did not proceed beyond that condition of the spinal column which is to be considered as embryonic. The Silurian and Devonian rocks do not present it in an ossified state. The fishes, up to the Carboniferous epoch, had a heterocercal tail, just as the embryos of osseous fishes of the present time have up to a certain period of their life. There was, therefore, an arrest in the old extinct forms, and an advance to a higher point in the more modern. The buckler-headed fishes of the Devonian rocks had their respiratory organs and much of their digestive apparatus in the head, and showed an approximation to the tadpoles or embryos of the frog. The crocodiles of the oolite had biconcave vertebræ, like the embryos of the recent ones which have gained the capability of making an advance to a higher point. In the geological order, reptiles make their appearance next after fishes, and this is what we should expect on the principle of an ascending nervous development. Not until long after come birds, later in date and higher in nervous advancement, capable not only of instinct, but also of intelligence. Of mammals, the first that appear are what we should have expected—the marsupials; but, among the tertiary rocks, very many other forms are presented, the earlier ones, whether herbivorous or carnivorous, having a closer correspondence to the archetype than the existing ones, save

in their embryonic states, the analogies occurring in such minor detail as the possession of forty-four teeth. The biography of the earth is thus on the great scale, typical of individual life, even that of man, and the succession of species in the progress of numberless ages is the counterpart of the transmutation of an individual from form to form. As in a dissolving view, new objects emerge from old ones, and new forms spontaneously appear without the exercise of any periodical creative act.

For some days after birth the actions of the human being are merely reflex. Its cranio-spinal axis alone is in operation, and thus far it is only an automaton. But soon the impressions of external objects begin to be registered or preserved in the sensory ganglia, and the evidences of memory appear. The first token of this is perhaps the display of an attachment to persons, not through any intelligent recognition of relationship, but merely because of familiarity. This is followed by the manifestation of a liking to accustomed places and a dread of strange ones. At this stage the infant is leading an instinctive life, and has made no greater advance than many of the lower mammals; but they linger here, while he proceeds onward. He soon shows high powers of memory, the exercise of reason in the determinations of judgment, and in the adaptation of varied means to varied ends.

Such is therefore the process of development of the nervous system of man; such are the powers which consequently he successively displays. His reason at last is paramount. No longer are his actions exclusively prompted by sensations; they are determined much more by ideas that have resulted from his former experiences. While animals which approach him most closely in construction require an external stimulus to commence a train of thought, he can direct his mental operations, and in this respect is parted from them by a vast interval. The states through which he has passed are the automatic, the instinctive, the intellectual; each has its own apparatus, and all at last work harmoniously together.

But besides this superposition of an instinctive apparatus upon an automatic one, and an intellectual upon an instinctive, the nervous system consists of two equal and symmetrical lateral portions, a right half and a left. Each person may be considered as consisting in reality of two individuals. The right half may be stricken with palsy, the left be unimpaired; one may lose its sight or hearing, the other may retain them. These lateral halves lead independent lives. Yet, though independent in this sense, they are closely connected in another. The brain of the right side rules over the left half of the body, that of the left side rules over the right of the body. On the relationships and antagonisms of the two halves of the cerebro-spinal sys-

Absolute necessity
of admitting trans-
mutation of forms.

Life of man from
infancy to matu-
rity in accord-
ance with his an-
atomy.

Every person
consists of two
lateral indi-
viduals.

tem must be founded our explanations of the otherwise mysterious phenomena of double and alternate life; of the sentiment of pre-existence; of trains of thought, often double, but never triple; of the willful delusions of castle-building, in which one hemisphere of the brain listens to the romance suggestions of the other, though both well know that the subject they are entertaining themselves with is a mere fiction. The strength and precision of mental operations depend as much upon the complete equivalency of the two lateral halves as upon their absolute development. It is scarcely to be expected that great intellectual indications will be given by him, one of whose cerebral hemispheres is unequal to the other. But for the detailed consideration of these topics I may refer the reader to my work on Physiology. He will there find the explanation of the nature of registering ganglia; the physical theory of memory; the causes of our variable psychical powers at different times; the description of the ear as the organ of time; the eye as the organ of space; the touch as that of pressures and temperatures; the smell and taste as those for the chemical determination of gases and liquids.

Consequences of this doubleness of construction.

From a consideration of the construction, development, and action of the nervous system of man, we may gain correct views of his relations to other organic beings, and obtain true psychological and metaphysical theories. There is not that homogeneity in his intellectual structure which writers on those topics so long supposed. It is a triple mechanism. A gentle, a gradual, a definite development reaches its maximum in him without a breach of continuity. Parts which, because of their completion, are capable of yielding in him such splendid results, are seen in a rudimentary and useless condition in organisms very far down below. On the clear recognition of this rudimentary, this useless state, very much depends. It indicates the master-fact of psychology—the fact that Averrhoes overlooked—that, while man agrees with inferior beings in the type of his construction, and passes in his development through transformations analogous to theirs, he differs from them all in this, that he alone possesses an accountable, an immortal soul. It is true that there are some which closely approach him in structure, but the existence of structure by no means implies the exercise of functions. In the still-born infant, the mechanism for respiration, the lungs, is completed; but the air may never enter, and the intention for which they were formed never be carried out.

Conclusions from the foregoing anatomical facts.

Man a member of the animal series.

Moreover, it appears that the order of development in the life of individual man and the order of development in the life of the earth are the same, their common features indicating a common plan. The one is the movement of a few hours, the other of myriads of ages. This sameness of manner in their progression points out

His life and that of the planet alike.

their dependence on a law immutable and universal. The successive appearance of the animal series in the endless course of time has not therefore, been accidental, but as predetermined and as certain as the successive forms of the individual. In the latter we do not find any cause of surprise in the assumption of states ever increasing in improvement, ever rising higher and higher toward the perfection destined to be attained. We look upon it as the course of nature. Why, then, should we consider the extinctions and creations of the former as offering anything unaccountable, as connected with a sudden creative fiat or with an arbitrary sentence of destruction?

In this book I have endeavored to investigate the progress of humanity, and found that it shows all the phases of individual movement, the evidence employed being historical, and, therefore, of a nature altogether different from that on which our conclusions in the collateral instances rest. It may serve to assure us that the ideas here presented are true when we encounter, at the close of our investigation, this harmony between the life of the individual, the life of society, and the life of the earth.

Is it probable that the individual proceeds in his movement of development under law, that the planet also proceeds in its movement under law, but that society does not proceed under law?

Man, thus, is the last term of an innumerable series of organisms, which, under the domination of law, has, in the lapse of time, been evolving. Law has controlled the inorganic world, and caused the earth to pass through various physical conditions, gently and continuously succeeding one another. The plastic forms of organic beings have been modeled to suit those changing conditions. The invariability of that law is indicated by the numberless ages through which it has been maintained, its universality by its holding good in the life of the meanest individual.

But it is only a part of sociology that we have considered, and of which we have investigated the development. In the most philosophical aspect the subject includes comparative as well as human comparative sociology. For, though there may not be society where actions are simply reflex, there is a possibility of it where they are instinctive, as well as where they are intellectual. Its essential condition being intercommunication, there are necessarily modifications depending respectively on touch or upon the higher and more delicate senses. That is none the less society which, among insects, depends upon antennal contacts. Human society, founded on speech, sight, hearing, has its indistinct beginnings, its rudiments, very low down in the animal scale, as in the bell-like note which some of the nudibranchiate gasteropods emit, or the solitary midnight tapping with which the death-watch salutes his mate. Society resting on instinct is characterized by immo-

bility; it is necessarily unprogressive. Society resting on intellect is always advancing.

But, for the present, declining this general examination of sociology, and limiting our attention strictly to that of humanity, we can not fail to be struck with the fact that in us the direction of evolution is altogether toward the intellectual, a conclusion equally impressed upon us whether our mode of examination be anatomical or historical. Anatomically we find no provision in the nervous system for the improvement of the moral, save indirectly through the intellectual, the whole aim of development being for the sake of intelligence. Historically, in the same manner, we find that the intellectual has always led the way in social advancement, the moral having been subordinate thereto. The former has been the mainspring of the movement, the latter passively affected. It is a mistake to make the progress of society depend on that which is itself controlled by a higher power. In the earlier and inferior stages of individual life we may govern through the moral alone. In that way we may guide children, but it is to the understanding of the adult that we must appeal.

A system working only through the moral must sooner or later come into an antagonism with the intellectual, and, if it does not contain within itself a means of adaptation to the changing circumstances, must in the end be overthrown. This was the grand error of that Roman system which presided while European civilization was developing. It assumed as its basis a uniform, a stationary, psychological condition in man. Forgetting that the powers of the mind grow with the possessions of the mind, it considered those who lived in past generations as being in no respect mentally inferior to those who are living now, though our children at sixteen may have a wider range of knowledge than our ancestors at sixty. That such an imperfect system could exist for so many ages is a proof of a temporary condition of undeveloped intellect, just as we see that the understanding of a child does not revolt against the moral suasion, often intrinsically feeble, through which we attempt to influence him. But it would be as unphilosophical to treat with disdain the ideas that have served for a guide in the earlier ages of European life, as to look with contempt on the motives that have guided us in youth. Their feebleness and incompetency is excused by their suitability to the period of life to which they are applied.

But whoever considers these things will see that there is a term beyond which the application of such methods can not be extended. The head of a family would act unwisely if he attempted to apply to his son at twenty-one the methods he had successfully used at ten; such methods could be only rendered effective by a resort to physical compulsion. A great change in the inter-

The aim of Nature is not at moral, but intellectual development.

Systems of policy must be in accordance therewith.

The Age of Reason demands intellectual incentives for the individual.

vening years has taken place, and ideas once intrinsically powerful can exert their influence no more. The moral may have remained unchanged; it may be precisely as it was—no better, no worse; but that which has changed is the understanding. Reasoning and inducements of an intellectual kind are now needful. An attempt to persist in an absolute system by constraint would only meet with remonstrance and derision.

If it is thus with the individual, so it is likewise with humanity. For centuries nations may live under forms that meet their requirements, forms suitable to a feeble state; but it is altogether illusory to suppose that such an adaptedness can continue forever. A critical eye discerns that the mental features of a given generation have become different from those of its ancestors. New ideas and a new manner of action are the tokens that a modification has silently taken place. Though after a short interval the change might not amount to much, in the course of time there must inevitably be exhibited the spectacle of a society that had outgrown its forms, its rules of life.

Wherever, then, such a want of harmony becomes perceptible, where the social system is incompatible with the social state, and is, in effect, an obsolete anachronism, it is plainly unphilosophical and unwise to resort to means of compulsion. No matter what the power of governments or of human authorities may be, it is impossible for them to stop the intellectual advancement, for it forces its way by an organic law over which they have no kind of control.

Astronomers sometimes affirm that the sun is the cause, directly or indirectly, of all the mechanical movements that take place upon the earth. Physiologists say that he is the generator of the countless living forms with which her surface is adorned.

If the light, the warmth, and other physical influences of the sun could be excluded, there would be a stagnant and icy sea encircling silent and solitary shores. But the veil once withdrawn, or the influences permitted to take effect, this night and stillness would give place to activity and change. In the morning beams of the day, the tropical waters, expanding, would follow from east to west the course of the sun, each renewed dawn renewing the impulse, and adding force to the gentle but resistless current. At one place the flowing mass would move compactly; at another, caught by accidentally projecting rocks, it would give off little eddies, expending their share of its force; or, compressed in narrow passages, it would rush impetuously along. Upon its surface myriads of momentary ripples would play, or opposing winds, called into existence by similar disturbances in the air, would force it into waves, making the shores re-

sound with their breaking surge. Twice every day, under the conjoint influences of the sun and the moon, as if the inanimate globe itself were breathing, the tide would rise and fall again upon the bosom of the deep.

The eddy, the ripple, the wave, the current, are accidental forms through which the originally imparted force is displayed. They are all expending power. Their life, if such a term can be used, is not the property of themselves, but of the ocean to which they belong.

Influences which thus metaphorically give life to the sea, in reality give life to the land. Under their genial operation a wave of verdure spreads over the earth, and countless myriads of ani- <sup>and on organ-
ic nature.</sup> mated things attend it, each like the eddies and ripples of the sea, expending its share of the imparted force. The life of these accidental forms, through which power is being transposed, belongs, not to itself, but to the universe of which it is a part.

Of the waves upon the ocean there may not be two alike. The winds, the shores, their mutual interferences, a hundred extraneous <sup>Nature of an-
imals.</sup> influences, mould them into their ephemeral shapes. So those collections of matter of which animated things consist offer a plastic substance to be modified. The number of individuals counts like the ripples of the sea.

As external circumstances change, animated forms change with them, and thus arises a series of which the members stand in a con- <sup>They consti-
tute a series</sup> nected relation. The affiliated sequence of the external circumstances is represented in the affiliated succession of living types. From parts, or from things already existing, new parts and new things emerge, the new not being added or juxtaposed to the old, but evolved or developed from it. From the homogeneous or general, the heterogeneous or special is brought forth. A new member, fashioned in secrecy and apart, is never abruptly ingrafted on any living thing. New animal types have never been suddenly located among old ones, but have emerged from them by process of transmutation. As certainly as that every living thing must die, so must it reach perfection by passing through a succession of subordinate forms. An individual, or even a species, is only a zoological phase in a passage to something beyond. An instantaneous adult, like an immortal animal, is a physiological impossibility.

This bringing forth of structure from structure, of function from function, incidentally presents, upon the whole, an appearance of <sup>The doctrine of
progressive im-
provement.</sup> progressive improvement, and for such it has been not unfrequently mistaken. Thus, if the lowest animals, which move by reflex action, instantly but unconsciously, when an impression is made upon them, be compared with the higher ones, whose motions are executed under the influence of antecedent impressions, and are therefore controlled by ideas, there seems to have been such an improvement.

Still, however, it is altogether of a physical kind. Every impression of which the dog or elephant is conscious implies change in the nerve centres, and these changes are at the basis of the memory displayed by those animals. Our own experience furnishes many illustrations. When we gaze steadfastly on some brightly-illuminated object, and then close or turn aside our eyes, a fading impression of the object at which we have been looking still remains; or, when a spark is made to revolve rapidly, we think we see a circle of fire, the impression upon the retina lasting until the spark has completed its revolution. In like manner, though far more perfectly, are impressions registered or stored up in the sensory ganglia, the phantoms of realities that have once been seen. In those organs countless images may thus be superposed.

Man agrees with animals thus approaching him in anatomical construction in many important respects. He, too, represents a continuous succession of matter, a continuous expenditure of power. Impressions of external things are concealed in his sensory ganglia, to be presented for inspection in subsequent times, and to constitute motives of action. But he differs from them in this, that what was preparatory and rudimentary in them is complete and perfect in him. From the instrument of instinct there has been developed an instrument of intellection. In the most perfect quadrupeds, an external stimulus is required to start a train of thought, which then moves on in a determinate way, their actions indicating that, under the circumstances, they reason according to the same rules as man, drawing conclusions more or less correct from the facts offered to their notice. But, the instrument of intellection completed, it is quickly brought into use, and now results of the highest order appear. The succession of ideas is under control; new trains can be originated not only by external causes, but also by an interior, a spontaneous influence. The passive has become active. Animals remember, man alone recollects. Every thing demonstrates that the development and completion of this instrument of intellection has been followed by the superaddition of an agent or principle that can use it.

There is, then, a difference between the brutes and man, not only as respects constitution, but also as respects destiny. Their active force merges into other mundane forces and disappears, but the special principle given to him endures. We willingly persuade ourselves that this principle is actually personified, and that the shades of the dead resemble their living forms. To Eastern Asia, where philosophy has been accustomed to the abstract idea of force, the pleasures we derive from this contemplation are denied, the cheerless doctrine of Buddhism likening the life of man to the burning of a lamp, and death to its extinction. Perceiving in the mutation of things, as seen in the narrow range of human vision, a suggestion of the variations and distri-

Analogies between animals and man.

Points of distinction between them.

bution of power throughout nature, it rises to a grand, and, it must be added, an awful conception of the universe.

But Europe, and also the Mohammedan nations of Asia, have not received with approbation that view. To them there is an individualized impersonation of the soul, and an expectation of its life hereafter. The animal fabric is only an instrument for its use. ^{The human soul.} The eye is the window through which that mysterious principle perceives; through the ear are brought to its attention articulate sounds and harmonies; by the other organs the sensible qualities of bodies are made known. From the silent chambers and winding labyrinths of the brain the veiled enchantress looks forth on the outer world, and holds the subservient body in an irresistible spell.

This difference between the Oriental and European ideas respecting the nature of man reappears in their ideas respecting the nature of the world. The one sees in it only a gigantic engine, in which stars and orbs are diffusing power and running through predestined mutations. ^{Extension of these views to the nature of the world.} The other, with better philosophy and a higher science, asserts a personal God, who considers and orders events in a vast panorama before him.

CHAPTER XXV.

THE EUROPEAN AGE OF REASON—(Continued).

THE UNION OF SCIENCE AND INDUSTRY.

European Progress in the Acquisition of exact Knowledge.—Its Resemblance to that of Greece. Discoveries respecting the Air.—Its mechanical and chemical Properties.—Its Relation to Animals and Plants.—The Winds.—Meteorology.—Sounds.—Acoustic Phenomena.

Discoveries respecting the Ocean.—Physical and chemical Phenomena.—Tides and Currents.—Clouds.—Decomposition of Water.

Discoveries respecting other material Substances.—Progress of Chemistry.

Discoveries respecting Electricity, Magnetism, Light, Heat.

Mechanical Philosophy and Inventions.—Physical Instruments.—The Result illustrated by the Cotton Manufacture—Steam-engine—Bleaching—Canals—Railways.—Improvements in the Construction of Machinery.—Social Changes produced.—Its Effect on intellectual Activity. The scientific Contributions of various Nations, and especially of Italy.

THE Age of Reason in Europe presents all the peculiarities of the Age of Reason in Greece. There are modern representatives of King Ptolemy Philadelphus among his furnaces and crucibles; of Hipparchus cataloguing the stars; of Aristyllus and Timochares, with their stone quadrants and armyls, ascertaining the planetary motions; of Eratosthenes measuring the size of the earth; of Herophilus dissecting the human body; of Archimedes settling the laws of mechanics and hydrostatics; of Manetho collating the annals of the old dynasties of Egypt; of Euclid and Apollonius improving mathematics. There are botanical

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Analogy between the Age of Reason in Europe and in Greece.

gardens and zoological menageries like those of Alexandria, and expeditions to the sources of the Nile. The direction of thought is the same; but the progress is on a greater scale, and illustrated by more imposing results. The exploring voyages to Madagascar are replaced by circumnavigations of the world; the revolving steam-engine of Hero by the double-acting engine of Watt; the great galley of Ptolemy, with its many banks of rowers, by the ocean steamship; the solitary watch-fire on the Pharos by a thousand light-houses, with their fixed and revolving lights; the courier on his Arab horse by the locomotive and electric telegraph; the scriptorium in the Serapion, with its shelves of papyrus, by countless printing-presses; the *Almagest* of Ptolemy by the *Principia* of Newton; and the Museum itself by English, French, Italian, German, Dutch, and Russian philosophical societies, universities, colleges, and other institutions of learning.

European progress in the acquisition of knowledge.

So grand is the scale on which this cultivation of science has been resumed, so many are those engaged in it, so rapid is the advance, and so great are the material advantages, that there is no difficulty in appreciating the age of which it is the characteristic. The most superficial outline enables us to recognize at once its resemblance to that period of Greek life to which I have referred. To bring its features into relief, I shall devote a few pages to a cursory review of the progress of some of the departments of science, selecting for the purpose topics of general interest.

First, then, as respects the atmosphere, and the phenomena connected with it.

From observations on the twilight, the elasticity of aerial bodies, and the condensing action of cold, the conclusion previously arrived at by Alhazen was established, that the atmosphere does not extend unlimitedly into space. Its height is considered to be about forty-five miles. From its compressibility, the greater part of it is within a much smaller limit; were it of uniform density, it would not extend more than 29,000 feet. Hence, comparing it with the dimensions of the earth, it is an insignificant aerial shell, in thickness not the eightieth part of the distance to the earth's centre, and its immensity altogether an illusion. It bears about the same proportion to the earth that the down upon a peach bears to the peach itself.

A foundation for the mechanical theory of the atmosphere was laid as soon as just ideas respecting liquid pressures, as formerly taught by Archimedes, were restored, the conditions of vertical and oblique pressures investigated, the demonstration of equality of pressures in all directions given, and the proof furnished that the force of a liquid on the bottom of a vessel may be very much greater than its weight.

Such of these conclusions as were applicable were soon transferred to the case of aerial bodies. The weight of the atmosphere was demonstra-

ted, its pressure illustrated and measured; then came the dispute about the action of pumps, and the overthrow of the Aristotelian doctrine of the horror of a vacuum. Coincidentally occurred the invention of the barometer, and the proof of its true theory, both on a steeple in Paris and on a mountain in Auvergne. The invention of the air-pump, and its beautiful illustrations of the properties of the atmosphere, extended in a singular manner the taste for natural philosophy.

The mechanics of the air was soon followed by its chemistry. From remote ages it had been numbered among the elements, though considered liable to vitiation or foulness. The great discovery of oxygen gas placed its chemical relations in their proper position. One after another, other gases, both simple and compound, were discovered. Then it was recognized that the atmosphere is the common receptacle for all gases and vapors, and the problem whether, in the course of ages, it has ever undergone change in its constitution arose for solution.

The negative determination of that problem, so far as a few thousand years were concerned, was necessarily followed by a recognition of the antagonism of animals and plants, and their mutually balancing each other, the latter accomplishing their duty under the influence of the sun, though he is a hundred millions of miles distant. From this it appeared that it is not by incessant interventions that the sum total of animal life is adjusted to that of vegetable, but that, in this respect, the system of government of the world is by the operation of natural causes and law, a conclusion the more imposing since it contemplates all living things, and includes even man himself. The detail of these investigations proved that the organic substance of plants is condensed from the inorganic air to which that of all animals returns, the particles running in ever-repeating cycles, now in the air, now in plants, now in animals, now in the air again, the impulse of movement being in the sun, from whom has come the force incorporated in plant tissues, and eventually disengaged in our fires, shining in our flames, oppressing us in fevers, and surprising us in blushes.

Organic disturbances by respiration and the growth of plants being in the lowest stratum of the air, its uniformity of composition would be impossible were it not for the agency of the winds and the diffusion of gases, which it was found would take place under any pressure. The winds were at length properly referred to the influence of the sun, whose heat warms the air, causing it to ascend, while other portions flow in below. The explanation of land and sea breezes was given, and in the trade-wind was found a proof of the rotation of the earth. At a later period followed the explanation of monsoons in the alternate heating and cooling of Asia and Africa on opposite sides of the line, and of tornadoes, which are disks of air rotating round a trans-

Its mechanical relations.

Its chemical relations.

The antagonism of animals and plants.

The winds; their origin and nature.

lated axis with a diameter of one hundred or one hundred and fifty miles, the axis moving in a curvilinear track with a progressive advance of twenty or twenty-five miles an hour, and the motions being in opposite directions on opposite hemispheres of the globe.

The equatorial calms and trade-winds accounted for on physical principles, it was admitted that the winds of high latitudes, proverbially uncertain as they are, depend in like manner on definite causes.

With these palpable movements there are others of a less obvious kind. Through the air, and by reason of motions in it, sounds are transmitted to us.

The Alexandrian mathematicians made sound a favorite study. Modern acoustics arose from the recognition that there is nothing issuing from the sounding body, but that its parts are vibrating and affecting the medium between it and the ear. Not only by the air-pump, but also by observations in the rare atmosphere of the upper regions, it was shown that the intensity of sound depends upon the density. On the top of a mountain the report of a pistol is no louder than that of a cracker in the valley. As to the gradual propagation of sounds, it was impossible to observe fire-arms discharged at a distance without noticing that the flash appears longer before the report in proportion as the distance is greater. The Florentine academicians attempted a determination of the velocity, and found it to be 1148 feet in a second. More accurate and recent experiments made it 1089.42 feet at the freezing-point of water; but the velocity, though independent of the density, increases with the temperature at the rate of 1.14 foot for each degree. For other media the rate is different; for water, about 4687 feet in a second, and in cast iron about $10\frac{1}{2}$ times greater than in air. All sounds, irrespective of their note or intensity, move at the same velocity, the medium itself being motionless in the mass. No sound can pass through a vacuum. The sudden aerial condensation attending the propagation of a sound gives rise to a momentary evolution of heat, which increases the elasticity of the air, and hence the velocity is higher than 916 feet in a second, otherwise the theoretical rate.

Turning from soniferous media to sounding bodies, it was shown that the difference between acute and grave sounds depends on the frequency of vibration. The ear can not perceive a sound originating in less than thirty-two vibrations in a second, nor one of more than 24,000. The actual number of vibrations in a given note was counted by means of revolving wheels and other contrivances. I have not space to relate the investigation of many other acoustic facts, the reference of sounds to phases of condensation, and rarefaction in the elastic medium taking place in a normal direction; the affections of note, intensity, quality; the passage in curved lines and around obstacles; the production of sympathetic sounds; nodal points; the effect of

Acoustic phenomena.

reeds; the phenomena of pipes and flutes, and other wind instruments; the various vibrations of solids, as bells; or of membranes, as drums; visible acoustic lines; the reflection of undulations by surfaces of various forms; their interferences, so that, no matter how intense they may be individually, they can be caused to produce silence; nor of whispering galleries, echoes, the nature of articulate sounds, the physiology of the vocal and auditory organs of man, and the construction of speaking machines.

Like the air, the ocean, which covers three fourths of the earth's surface, when reduced to a proper standard of measure, loses very much of its imposing aspect. The varnish that covers a twelve-inch globe represents its relative dimension not inadequately. The ocean; its size.

On the theory of gravitation, the tides of the ocean were explained as depending on the attractive force of the sun and moon. Its currents, in a general manner, are analogous to those of the air. Tides and currents. They originate in the disturbing action of solar heat, the temperature of the sea varying from 85° in the torrid zone to the freezing-point as the poles are approached. Its specific gravity at the equator is estimated at 1.028; but this density necessarily varies with the rate at which superficial evaporation takes place; the pure vapor rising, leaves a more concentrated salt solution. The effect is therefore, in some degree, to counteract the expansion of the water by warmth, for the sun-rays, being able to penetrate several feet below the surface, correspondingly raise the temperature of that portion, which expands and becomes lighter; but, simultaneously, surface evaporation tends to make the water heavier. Notwithstanding this, currents are established through the preponderance of the dilatation, and of them the Gulf Stream is to us the most striking example.

The physical action of the sun-rays in occasioning currents operates through the expansion of water, of which warm portions ascend to the surface, colder portions from beneath setting in to supply their place. Effects of ocean streams. These currents, both hot and cold, are affected by the diurnal rotation of the earth, the action being essentially the same as that for the winds. They exert so great an influence as conveyers of heat as to disturb the ordinary climate relation depending on the sun's position. In this way the Gulf Stream, a river of hot water in a sea of cold, as soon as it spreads out on the surface of the Atlantic in higher latitudes, liberates into the air the heat it has brought from the torrid zone; and this, being borne by the southwest wind, which blows in those localities for the greater part of the year, to the westerly part of the European continent, raises by many degrees the mean annual temperature, thus not only regulating the distribution of animals and plants, but also influencing human life and its pursuits, making places congenial that would otherwise be inclement, and even facilitating the

progress of civilization. Whatever, therefore, can affect the heat, the volume, the velocity, the direction of such a stream, at once produces important consequences in the organic world.

The Alexandrian school had attained correct ideas respecting the mechanical properties of water as the type of liquids. This knowledge was, however, altogether lost in Europe for many ages, and not regained until the time of Stevinus and Galileo, who recovered correct views of the nature of pressure, both vertical and oblique, and placed the sciences of hydrostatics and hydrodynamics on proper foundations. The Florentine academicians, from their experiments on water inclosed in a globe of gold, concluded that it is incompressible, an error subsequently corrected, and its compressibility measured. The different states in which it occurs, as ice, water, steam, were shown to depend altogether on the amount of latent heat it contains. Out of these investigations originated the invention of the steam-engine, of which it may be said that it has revolutionized the industry of the world. Soon after the explanation of the cause of its three states followed the great discovery that the opinion of past ages respecting its elementary nature is altogether erroneous. It is not a simple element, but is composed of two ingredients, oxygen and hydrogen, as was rigorously proved by decomposing and forming it. By degrees, more correct views of the nature of evaporation were introduced; gases and vapors were found to coexist in the same space, not because of their mutual solvent power, but because of their individual and independent elasticity. The instantaneous formation of vapors in a vacuum showed that the determining condition is heat, the weight of vapor capable of existing in a given space being proportional to the temperature. More scientific views of the nature of maximum density were obtained, and on these principles was effected the essential improvement of the low-pressure steam-engine—the apparent paradox of condensing the steam without cooling the cylinder.

In like manner much light was cast on the meteorological functions of water. It was seen that the diurnal vaporization from the earth depends on the amount of heat received, the vapor rising invisibly in the air till it reaches a region where the temperature is sufficiently low. There condensation into vesicles of perhaps $\frac{1}{1000}$ of an inch in diameter ensues, and of myriads of such globules a cloud is composed. Of clouds, notwithstanding their many forms and aspects, a classification was given—cirrus, cumulus, stratus, etc. It was obvious why some dissolve away and disappear when they encounter warmer or drier spaces, and why others descend as rain. It was shown that the drops can not be pure, since they come in contact with dust, soluble gases, and organic matter in the air. Sinking into the ground, the water issues forth as springs, contaminated with whatever is in the

Physical and
chemical re-
lations of wa-
ter.

Clouds and their
nomenclature.

soil, and finds its way, through streamlets and rivers, back to the sea, and thus the drainage of countries is accomplished. The return of water to the sea. Through such a returning path it comes to the receptacle from which it set out; the heat of the sun raised it from the ocean, the attraction of the earth returns it thereto; and, since the heat-supply is invariable from year to year, the quantity set in motion must be the same. Collateral results of no little importance attend these movements. Every drop of rain falling on the earth disintegrates and disturbs portions of the soil; every stream carries solid matter into the sea. It is the province of geology to estimate the enormous aggregate of detritus, continents washed away and new continents formed, and the face of the earth remodeled and renewed.

The artificial decomposition of water constitutes an epoch in chemistry. The European form of this science, in contradistinction Progress of chemistry. to the Arabian, arose from the doctrine of acids and alkalies, and their neutralization. This was about A.D. 1614. It was perceived that the union of bodies is connected with the possession of opposite qualities, and hence was introduced the idea of an attraction of affinity. On this the discovery of elective attraction followed. Then came the recognition that this attraction is connected with opposite electrical states, chemistry and electricity approaching each other. A train of splendid discoveries followed; metals were obtained light enough to float in water, and even apparently to accomplish the proverbial impossibility of setting it on fire. In the end it was shown that the chemical force of electricity is directly proportional to its absolute quantity. Better views of the nature of chemical attraction were attained, Attraction. The elements. better views of the intrinsic nature of bodies. The old idea of four elements was discarded, as also the Saracenic doctrine of salt, sulphur, and mercury. The elements were multiplied until at last they numbered more than sixty. Alchemy merged into chemistry through the theory of phlogiston, which accounted for the change that Theory of phlogiston. metals undergo when exposed to the fire on the principle that something was driven off from them—a something that might be restored again by the action of combustible bodies. It is remarkable how adaptive this theory was. It was found to include the cases of combustive operations, the production of acids, the breathing of animals. It maintained its ground even long after the discovery of oxygen gas, of which one of the first names was dephlogisticated air.

But a false theory always contains within itself the germ of its own destruction. The weak point of this was, that when a metal is burnt the product ought to be lighter than the metal, whereas it proves heavier. At length it was detected that what the metal had gained the surrounding air had lost. This discovery implied that Introduction of the balance into chemistry. the balance had been resorted to for the determination of

weights and for the decision of physical questions. The reintroduction of that instrument—for, as we have seen, it had ages before been employed by the Saracen philosophers, who used several different forms of it—marked the epoch when chemistry ceased to be exclusively a science of quality and became one of quantity.

On the ruins of the phlogistic theory arose the theory of oxygen, which was sustained with singular ability. Its progress was greatly facilitated by the promulgation of a new nomenclature in conformity to its principles, and of remarkable elegance and power. In the course of time it became necessary, however, to modify the theory, especially by deposing oxygen from the attitude of sovereignty to which it had been elevated, and assigning to it several colleagues, such as chlorine, iodine, etc. The introduction of the balance was also followed by important consequences in theoretical chemistry, among which pre-eminently was the establishment of the laws of combinations of bodies.

Extensive and imposing as is the structure of chemistry, it is very far from its completion. It is so surrounded by the scaffolding its builders are using, it is so deformed with the materials of their work, that its true plan can not yet be made out. In this respect it is far more backward than astronomy. It has, however, disposed of the idea of the destruction and creation of matter. It accepts without hesitation the doctrine of the imperishability of substance; for, though the aspect of a thing may change through decompositions and recombinations, in which its constituent parts are concerned, every atom continues to exist, and may be recovered by suitable processes, though the entire thing may have seemingly disappeared. A particle of water raised from the sea may ascend invisibly through the air, it may float above us in the cloud, it may fall in the rain-drop, sink into the earth, gush forth again in the fountain, enter the rootlets of a plant, rise up with the sap to the leaves, be there decomposed by the sunlight into its constituent elements, its oxygen and hydrogen; of these and other elements, oils, and acids, and various organic compounds may be made; in these or in its undecomposed state it may be received in the food of animals, circulate in their blood, be essentially concerned in acts of intellection executed by the brain, it may be expired in the breath. Though shed in the tear in moments of despair, it may give birth to the rainbow, the emblem of hope. Whatever the course through which it has passed, whatever mutations it has undergone, whatever the force it has submitted to, its elementary constituents endure. Not only have they not been annihilated, they have not even been changed; and in a period of time, long or short, they find their way as water back again to the sea from which they came.

Discoveries in electricity not only made a profound impression on

chemistry, they have taken no insignificant share in modifying human opinion on other very interesting subjects. In all ages the lightning had been looked upon with superstitious dread. The thunderbolt had long been feigned to be the especial weapon of Divinity. A like superstitious sentiment had prevailed respecting the northern lights, universally regarded in those countries in which they display themselves as glimpses of the movements of the angelic hosts, the banners and weapons of the armies of heaven. A great blow against superstition was struck when the physical nature of these phenomena was determined. As to the connection of electrical science with the progress of civilization, what more needs to be said than to allude to the telegraph.

It is an illustration of the excellence and fertility of modern methods that the phenomena of the attraction displayed by amber, which had been known and neglected for two thousand years, in one tenth of that time led to surprising results. First it was shown that there are many other bodies which will act in like manner; then came the invention of the electrical machine, the discovery of electrical repulsion, and the spark; the differences of conductivity in bodies; the two apparent species of electricity, vitreous and resinous; the general law of attraction and repulsion; the wonderful phenomena of the Leyden phial and the electric shock; the demonstration of the identity of lightning and electricity; the means of protecting buildings and ships by rods; the velocity of electric movement—that immense distances can be passed through in an inappreciable time; the theory of one fluid and that of two; the mathematical discussion of all the phenomena, first on one and then on the other of these doctrines; the invention of the torsion balance; the determination that the attractive and repulsive forces follow the law of the inverse squares; the conditions of distribution on conductors; the elucidation of the phenomena of induction. At length, when discovery seemed to be pausing, the facts of galvanism were announced in Italy. Up to this time it was thought that the most certain sign of the death of an animal was its inability to exhibit muscular contraction; but now it was shown that muscular movements could be excited in those that were dead and even mutilated. Then followed quickly the invention of the Voltaic pile. Who could have foreseen that the twitching of a frog's leg in the Italian experiments would establish beyond all question the compound nature of water, separating its constituents from one another? would lead to the deflagration and dissipation in a vapor of metals that could hardly be melted in a furnace? would show that the solid earth we tread upon is an oxide? yield new metals light enough to swim upon water, and even seem to set it on fire? produce the most brilliant of all artificial lights, rivaling, if not

Electrical discoveries.

Theories of electricity.

Electrical phenomena.

Voltaic electricity.

Results of the discovery of Galvani.

excelling, in its intolerable splendor, the noontide sun? would occasion a complete revolution in chemistry, compelling that science to accept new ideas, and even a new nomenclature? that it would give us the power of making magnets capable of lifting more than a ton, and cast a light on that riddle of ages, the pointing of the mariner's compass north and south, and explain the mutual attraction or repulsion of magnetic needles? that it would enable us to form exquisitely in metal casts of all kinds of objects of art, and give workmen a means of gilding and silvering without risk to their health? that it would suggest to the evil-disposed the forging of bank-notes, the sophisticating of jewelry, and be invaluable in the uttering of false coinage? that it would carry the messages of commerce and friendship instantaneously across continents or under oceans, and "waft a sigh from Indus to the pole?"

Yet this is only a part of what the Italian experiment, carried out by modern methods, has actually done. Could there be a more brilliant exhibition of their power, a brighter earnest of the future of material philosophy?

As it had been with amber, so with the magnet. Its properties had lain uninvestigated for two thousand years, except in China, where the observation had been made that its qualities may be imparted to steel, and that a little bar or needle so prepared, if floated on the surface of water or otherwise suspended, will point north and south. In that manner the magnet had been applied to the navigation of ships, and in journeys across the trackless deserts. The first European magnetical discovery was that of Columbus, who observed a line of no variation west of the Azores. Then followed the detection of the dip, the demonstration of poles in the needle, and of the law of attraction and repulsion; the magnetic voyage undertaken by the English government; the construction of general variation charts; the observation of diurnal variation; local perturbations; the influence of the Aurora, which affects all the three expressions of magnetical power; the disturbance of the horary motion simultaneously over thousands of miles, as from Kasan to Paris. In the mean time, the theory of magnetism improved as the facts came out. Its germ was the Cartesian vortices, suggested by the curvilinear forms of iron filings in the vicinity of magnetic poles. The subsequent mathematical discussion was conducted upon the same principles as in the case of electricity.

Then came the Danish discovery of the relations of electricity and magnetism, illustrated in England by rotatory motions, and in France adorned by the electrodynamic theory, embracing the action of currents and magnets, magnets and currents, currents and currents. The generation of magnetism by electricity was after a little delay followed by the production of electricity by magnets; and thermomagnets, arising from the unequal application

Discoveries in
magnetism.

Electro-mag-
netism.

or propagation of heat, were rendered serviceable in producing the most sensitive of all thermometers.

The investigation of the nature and properties of light rivals in interest and value that of electricity. What is this agent, light, ^{or light and optics.} which clothes the earth with verdure, making animal life possible, extending man's intellectual sphere, bringing to his knowledge the forms and colors of things, and giving him information of the existence of countless myriads of worlds? What is this light which, in the midst of so many realities, presents him with so many delusive fictions, which rests the colored bow against the cloud—the bow once said, when men transferred their own motives and actions to the Divinity, to be the weapon of God?

The first ascertained optical fact was probably the propagation of light in straight lines. The theory of perspective, on which the Alexandrian mathematicians voluminously wrote, implies ^{Optical discoveries.} as much; but, agreeably to the early methods of philosophy, which were inclined to make man the centre of all things, it was supposed that rays are emitted from the eye and proceed outwardly, not that they come from exterior objects and pass through the organ of vision interiorly. Even the great geometer Euclid treated the subject on that erroneous principle, an error corrected by the Arabians. In the mean time the law of reflection had been discovered; that for refraction foiled Alhazen, and was reserved for a European. Among natural optical phenomena the form of the rainbow was accounted for, notwithstanding a general belief in its supernatural origin. Its colors, however, could not be explained until exact ideas of refrangibility, dispersion, and the composition of white light were attained. The reflecting telescope was invented; the recognized possibility of achromatism led to an improvement in the refractor. A little previously the progressive motion of light had been proved, first for reflected light by the ^{Colors and white light.} eclipses of Jupiter's satellites, then for the direct light of the stars. A true theory of colors originated with the formation of the solar spectrum; that beautiful experiment led to the discovery of irrationality of dispersion and the fixed lines. The phenomena of refraction in the case of Iceland spar were examined, and the law for the ordinary and extraordinary rays given. At the same time the polarization of light by double refraction was discovered. A century later it was followed by polarization by reflection and single refraction, depolarization, irised rings, bright and black crosses in crystals, and unannealed or compressed glass, the connection between optical phenomena and crystalline form, uniaxial crystals giving circular rings and biaxial oval ones, and circular and elliptical polarization.

The beautiful colors of soap-bubbles, at first mixed up with those of striated and dotted surfaces, were traced to their true condition—thick-

ness. The determination of thickness of a film necessary to give a certain color was the first instance of exceedingly minute measures beautifully executed. These soon became connected with fringes in shadows, and led to ascertaining the length of waves of light.

Meantime more correct ideas respecting vision were obtained. Alhazen's explanation of the use of the retina and lens was adopted. This had been the first truly scientific investigation in physiology. The action of the eye was reduced to that of the camera-obscura described by Da Vinci, and the old notion of rays issuing therefrom finally abandoned. It had held its ground through the deceptive illustration of the magic-lantern. Of this instrument the name indicates the popular opinion of its nature. In the stories of necromancers and magicians of the time are to be found traces of applications to which it was insidiously devoted—the raising of the dead, spectres skipping along the ground or dancing on the walls and chimneys, pendulous images, apparitions in volumes of smoke. These early instruments were the forerunners of many beautiful inventions of later times—the kaleidoscope, producing its forms of marvelous symmetry; the stereoscope, aided by photography, offering the very embodiment of external scenery; the achromatic and reflecting telescope, to which physical astronomy is so greatly indebted; and the achromatic microscope, now working a revolution in anatomy and physiology.

In its theory optics has presented a striking contrast to acoustics. Almost from the very beginning it was recognized that sound is not a material substance emitted from the sounding body, but only undulations occurring in the air. For long, optics failed to reach an analogous conclusion. The advancement of the former science has been from the general principle down to the details, that of the latter from the details up to the general principle.

That light consists of undulations in an elastic medium was first inferred in 1664. Soon after, reflection, refraction, and double refraction were accounted for on that principle. The slow progress of this theory was doubtless owing to Newton's supremacy. He gave a demonstration in the second book of the *Principia* (Prop. 42) that such motions must diverge into the unmoved spaces, and carried popular comprehension with him by such illustrations as that we hear sounds though a mountain interpose. It was thought that the undulatory theory was disposed of by such facts as the impossibility of seeing through a crooked pipe, though we can hear through it; or that we can not look round a corner, though we can listen round one.

The present century firmly established it through the discovery of interference, the destruction of the emission theory being inevitable when it was shown that light interferes under certain circumstances with light, and that sound added to sound may pro-

duce silence—results arising from the action of undulating motion. The difficulties presented by polarization were not only removed, but that class of phenomena were actually made a strong support of the theory. The discovery that two pencils of oppositely polarized light would not interfere, led at once to the theory of transverse vibrations. Great mathematical ability was now required for the treatment of the subject, and the special consideration of many optical problems from this new point of view, as, for example, determining the result of transverse vibrations coming into a medium of different density in different directions. As the theory of universal gravitation had formerly done, so now the undulatory theory began to display its power as a physical truth, enabling geometers to foresee results, and to precede the experimenter in conclusions. Among earlier results of the kind was the prediction that both the rays in the biaxial crystal topaz are extraordinary, and that circular polarization might be produced by reflection in a rhomb of glass. The phenomena of depolarization offered no special difficulty; and many new facts, as those of elliptic polarization and conical refraction, have since illustrated the power of the theory.

Light, then, is the result of ethereal undulations impinging on the eye. There exists throughout the universe and among the particles of all bodies an elastic medium, the ether. By reason of the repulsion of its own parts it is uniformly diffused in a vacuum. In the interior of refracting media it exists in a state of less elasticity compared with its density than in vacuo. Vibrations communicated to it in free space are propagated through such media by the ether in their interior. The parts of shining bodies vibrate as those of sounding ones, communicating their movement to the ether, and giving rise to waves in it. They produce in us the sensation of light. The slower the vibration, the longer the wave; the more frequent, the shorter. On wavelength color depends. In all cases the vibrations are transverse. The undulatory movement passes onward at the rate of 192,000 miles in a second. The mean length of a wave of light is 0.0000219 of an inch; an extreme red wave is twice as long as an extreme violet one. The yellow is intermediate. The vibrations which thus occasion light are, at a mean, 555 in the billionth of a second. As with the air, which is motionless when a sound passes through it, the ether is motionless, though traversed by waves of light. That which moves forward is no material substance, but only a form, as the waves seen running along a shaken cord, or the circles that rise and fall, and spread outwardly when a stone is thrown into water. The wave-like form passes onward to the outlying spaces, but the water does not rush forward. And as we may have on the surface of that liquid waves the height of which is insignificant, or those which, as sailors say, are mountains high in storms at sea, their amplitude thus differing, so in the midst of the ether differ-

The ether and its movements.

ence of amplitude is manifested to us by difference in the intensity or brilliancy of light.

The human eye, exquisitely constructed as it is, is nevertheless an imperfect mechanism, being limited in its action. It can only perceive waves of a definite length, as its fellow organ, the ear, can only distinguish a limited range of sounds. It can only take note of vibrations that are transverse, as the ear can only take note of those that are normal. In optics there are two distinct orders of facts: the actual relations of light itself, and the physiological relations of our organ of vision, with all its limitations and imperfections. Light is altogether the creation of the mind. The ether is one thing, light is another, just as the air is one thing and sound another. The ether is not composed of the colors of light any more than the atmospheric air consists of musical notes.

To the chemical agency of light much attention has in recent times been devoted. Already, in photography, it has furnished us an art which, though yet in its infancy, presents exquisite representations of scenery, past events, the countenances of our friends. In an almost magical way it evokes invisible impressions, and gives duration to fleeting shadows. Moreover, these chemical influences of light give birth to the whole vegetable world, with all its varied charms of color, form, and property, and, as we have seen in the last chapter, on them animal life itself depends.

The conclusions arrived at in optics necessarily entered as fundamental ideas in thermotics, or the science of heat; for radiant heat moves also in straight lines, undergoes reflection, refraction, double refraction, polarization, and hence the theory of transverse vibrations applies to it. Heat is invisible light, as light is visible heat. Correct notions of radiation originated with the Florentine academicians, who used concave mirrors; and, in the cold-ray experiment, masses of ice of five hundred pounds' weight. The refraction of invisible heat was ascertained in consequence of the invention of the thermoelectric pile. Its polarization and depolarization soon followed. Already had been demonstrated the influence of the physical state of radiant surfaces, and that the heat comes also from a little depth beneath them.

The felicitous doctrine of exchanges of heat imparted true ideas of the nature of calorific equilibrium and the heating and cooling of bodies, and offered an explanation of many phenomena, as, for instance, the formation of dew. This deposit of moisture occurs

after sunset, the more copiously the clearer the sky; it never appears on a cloudy night; it neither ascends from the ground like an exhalation, nor descends like a rain. It shows preferences in its manner of settling, being found on some objects before it is on others. All these singular peculiarities were satisfactorily explained, and an

The human eye; its capabilities.

Chemical influences of light.

Of heat: reflection; refraction.

Exchanges of heat.

The dew, nature of.

other of the mysteries, the unaccountable wonders of the Middle Ages, brought into the attitude of a simple physical fact.

It is impossible, in a limited space, to relate satisfactorily what has been done respecting ignition, the production of light by incandescence, the accurate measurement of the conductivity of bodies, the determination of the expansions of solids, liquids, gases, under increasing temperature, the variations of the same substance at different degrees, the heat of fluidity and elasticity, and specific heat, or to do justice to the great improvements made in all kinds of instruments—balances, thermometers, contrivances for linear and angular measures, telescopes, microscopes, chronometers, aerostats, telegraphs, and machinery generally. The tendency in every direction has been to practical applications. More accurate knowledge implies increasing power, greater wealth, higher virtue. The morality of man is enhanced by the improvement of his intellect and by personal independence. Our age has become rational, industrial, progressive. In its great physical inventions Europe may securely trust. There is nothing more to fear from Arabian invasions or Tartar irruptions. The hordes of Asia could be swept away like chaff before the wind. Let him who would form a correct opinion of the position of man in the present and preceding phases of his progress reflect on the losses of Christendom in Asia and Africa, in spite of all the machinery of an Age of Faith, and the present security of Europe from every barbarian or foreign attack.

From almost any of the branches of industry facts might be presented illustrating the benefits arising from the application of physical discoveries. As an example, I may refer to the cotton manufacture.

In a very short time after the mechanical arts were applied to the manufacture of textile fabrics, so great was the improvement that a man could do more work in a day than he had previously done in a year. That manufacture was moreover accompanied by such collateral events as actually overturned the social condition throughout Europe. These were such as the invention of the steam-engine, the canal system, the prodigious development of the iron manufacture, the locomotive, and railroads; results not due to the place-men and officers to whom that continent had resigned its annals, whose effigies encumber the streets of its cities, but to men in the lower walks of life. The assertion is true that James Watt, the instrument maker, conferred on his native country more solid benefits than all the treaties she ever made and all the battles she ever won. Arkwright was a barber, Harrison a carpenter, Brindley a millwright's apprentice.

By the labors of Paul or of Wyatt, who introduced the operation of spinning by rollers, a principle perfected by Arkwright; by the rotating

carding-engine, first devised by Paul; by the jenny of Highs or Hargreaves; the water-frame; the mule, invented by Crompton, so greatly ^{development} was the cotton manufacture developed as to demand an entire ^{of the cotton} change in the life of operatives, and hence arose the factory ^{in England} system. At a critical moment was introduced Watt's invention, the steam-engine. His first patent was taken out in 1769, the same year that Arkwright patented spinning by rollers. Watt's improvement chiefly consisted in the use of a separate condenser, and the replacement of atmospheric pressure by that of steam. Still, it was not until more than twenty years that this engine was introduced into factories, and hence it was not, as is sometimes supposed, the cause of their wonderful increase. It came, however, at a fortunate time, nearly coincident with the invention of the dressing-machine by Radcliffe and the power-loom by Cartwright.

If the production of textile fabrics received such advantages from mechanics, equally was it favored by chemistry in the discovery of bleaching by chlorine. To bleach a piece of cotton by the action of the air and the sun required from six to eight months, and a large surface of land must be used as a bleach-field. The value of land in the vicinity of great towns presented an insuperable obstacle to such uses. By chlorine the operation could be completed in the course of a few hours, and in a comparatively small building, the fibre being beautifully and permanently whitened. Nor were the chemical improvements restricted to this. Calico-printing, an art practiced ^{Calico-printing} many thousand years ago among the Egyptians, was perfected ^{by cylinders} by the operation of printing from cylinders.

It deserves to be remarked that the cotton manufacture was first introduced into Europe by the Arabs. Abderrahman III., A.D. 930, caused it to be commenced in Spain; he also had extensive manufactures of silk and leather, and interested himself much in the culture of the sugar-cane, rice, the mulberry. One of the most valuable Spanish applications of cotton was in the invention of cotton paper. The Arabs were also the authors of the printing of calicoes by wooden blocks, a great improvement on the old Indian operation of painting by hand.

We may excuse the enthusiastic literature of the cotton manufacture its boasting, for men had accomplished works that were nearly God-like. Mr. Baines, writing in 1833, states that the length of yarn spun in one year was nearly five thousand millions of miles, sufficient to pass round the earth's circumference more than two hundred thousand times—sufficient to reach fifty-one times from the earth to the sun. It would encircle the earth's orbit eight and a half times. The wrought fabrics exported in one year would form a girdle for the globe, ^{measures} round the equator, more than sufficient to ^{from the earth to the moon.} And, if

this was the case thirty years ago, by what illustrations would it be possible to depict it now (1859), when the quantity of cotton imported by England alone is more than twelve hundred millions of pounds?

But such a vast development in that particular manufacture necessarily implied other improvements, especially in locomotion and the transmission of intelligence. The peddler's pack, the ^{Improvements in locomotion.} pack-horse, and the cart became altogether inadequate, and, in succession, were replaced by the canal system of the last century, and by the steam-boats and railroads of this. The engineering triumphs of Brindley, whose canals were carried across valleys, over or ^{Brindley's canals.} through mountains, above rivers, excited unbounded admiration in his own times, and yet they were only the precursors of the railway engineering of ours. As it was, the canal system proved to be inadequate to the want, and oaken railways, which had long been used in quarries and coal-pits, with the locomotive invented by Murdoch in 1784, were destined to supplant them. It does not fall within my present purpose to relate how the locomotion of the whole civilized world was revolutionized, not by the act of some mighty sovereign or soldier, but by George Stephenson, once a steam-engine stoker, who, ^{Stephenson's locomotives.} by the invention of the tubular boiler and the ingenious device of blowing the chimney instead of the fire, converted the locomotive of the last century, which, at its utmost speed, could only travel seven miles an hour, into the locomotive of this, which can accomplish seventy. I need not dwell on the collateral improvements, the introduction of iron for rails, metallic bridges, tubular bridges, viaducts, ^{The railway system.} and all the prodigies of the existing system of railway engineering.

It is not only on account of the gigantic nature of the work it has to execute that the machinery employed in the great manufactures, such as those of cotton and iron, is so worthy of our admiration; ^{Improvement in the construction of machinery.} improvements as respects the correctness, and even the elegance of its own construction, attract our attention. It has been truly said of steam-engines that they were never properly made until they made themselves. In any machine, the excellence of its performance depends on the accuracy of its construction. Its parts must be made perfectly true, and, to work smoothly, must work without error. To accomplish such conditions taxed to its utmost the mechanical ingenuity of the last century; and, indeed, it was not possible to reach perfect success so long as the hand alone was resorted to. Work executed by the most skillful mechanic could be no more than approximately correct. Not until such machines as the sliding rest and planing engine were introduced could any approach to perfection be made. Improvements of this nature reacted at once on the primary construction of machinery, making it more powerful, more accurate, more durable, and also led to the introduction of greater elegance in its planning or conception, as

any one may see who will compare the clumsy half wood, half metal machinery of the last century with the light and tasteful constructions of this.

While thus the inventive class of men were gratifying their mental activity, and following that pursuit which has ever engrossed the energetic in all ages of the world—the pursuit of riches; for it was quickly perceived that success in this direction was the high road to wealth, public consideration, and honor—the realization of

*Social changes
effected by ma-
chinery.*

riches greater than the wildest expectations of the alchemists, there were silently and in an unobserved manner great social and national results arising. The operative was correct enough in his conclusion that machinery was throwing him out of work, and reflecting persons were right enough in their belief that this extensive introduction of machines was in some way accomplishing a disorganization of the social economy. Doubtless, for the time being, the distress and misery were very severe; men were compelled to starve or to turn to new avocations; families were deprived of their long-accustomed means of support; such must necessarily be the incidents of every great social change, even though it be a change of improvement. Nor was it until the new condition of things had passed through a considerable advance that its political tendency began to be plainly discerned. It was relieving the laborer from the burden of his toil, supplanting manual by mechanical action. In

*Life in the
mill.*

the cotton-mill, which may be looked upon as the embodiment of the new system and its tendencies, the steam-engine down below was doing the drudgery, turning the wheels and executing the labor, while the operatives above—men, women, and children—were engaged in those things that the engine could not accomplish—things requiring observation and intelligent action. Under such a state it was not possible but that a social change should ensue, for relief from corporeal labor is always followed by a disposition for mental activity; and it was not without a certain degree of plausibility that the philanthropist, whose attention was directed to this subject, asserted that the lot of the laboring man was no better than it had been before: he had changed the tyrant, but had not got rid of the tyranny; for the demands of the insatiate, inexorable, untiring steam-engine must be without delay satisfied; the broken thread must be instantly pieced; the iron fingers must receive their new supply; the finished work must be forthwith taken away.

What was thus going on in the mill was a miniature picture of what was going on in the state. Labor was comparatively diminishing, mental activity increasing. Throughout the last century the intellectual advance is most significantly marked, and surprising is the contrast between the beginning and the close. Ideas that once had a living force in the whole community of

*Intellectual
activity.*

fering an exemplification of the fact that the more opportunity men have for reflection the more they will think. Well, then, might those whose interests lay in the perpetuation of former ideas and the ancient order of things look with intolerable apprehension on what was taking place. They saw plainly that this intellectual activity would at last find a political expression, and that a power, daily increasing in intensity, would not fail to make itself felt in the end.

In such things are manifested the essential differences between the Age of Faith and the Age of Reason. In the former, if life was enjoyed in calmness, it was enjoyed in stagnation, in unproductiveness, and in a worthless way. But how different in the latter! Every thing is in movement. So many are the changes we witness, even in the course of a very brief period, that no one, though of the largest intellect, or in the most favorable position, can predict the future of only a few years hence. We see that ideas which yesterday served us as a guide to-day, and will be replaced by others, we know not what, to-morrow.

In this scientific advancement, among the triumphs of which we are living, all the nations of Europe have been engaged. Some, with a venial pride, claim for themselves the glory of having taken the lead. But perhaps each of them, if it might designate the country—alas! not yet a nation—that should occupy the succeeding post of honor, would inscribe Italy on its ballot. It was in Italy that Columbus was born; in Venice, destined one day to be restored to Italy, newspapers were first issued. It was in Italy that the laws of the descent of bodies to the earth and of the equilibrium of fluids were first determined by Galileo. In the Cathedral of Pisa that illustrious philosopher watched the swinging of the chandelier, and, observing that its vibrations, large and small, were made in equal times, left the house of God, his prayers unsaid, but the pendulum clock reinvented. To the Venetian senators he first showed the satellites of Jupiter, the crescent form of Venus, and, in the garden of Cardinal Bandini, the spots upon the sun. It was in Italy that Sanctorio invented the thermometer; that Torricelli constructed the barometer and demonstrated the pressure of the air. It was there that Castelli laid the foundation of hydraulics and discovered the laws of the flowing of water. There, too, the first Christian astronomical observatory was established, and there Stancari counted the number of vibrations of a string emitting musical notes. There Grimaldi discovered the diffraction of light, and the Florentine academicians showed that dark heat may be reflected by mirrors across space. In our own times Melloni furnished the means of proving that it may be polarized. The first philosophical societies were the Italian; the first botanical garden was established at Pisa; the first classification of plants given by Cæsalpinus. The first

geological museum was founded at Verona; the first who cultivated the study of fossil remains were Leonardo da Vinci and Fracaster. The great chemical discoveries of this century were made by instruments which bear the names of Galvani and Volta. Why need I speak of science alone? Who will dispute with that illustrious people the palm of music and painting, of statuary and architecture? The dark cloud which for a thousand years has hung over that beautiful peninsula is fringed with irradiations of light. There is not a department of human knowledge from which Italy has not extracted glory, no art that she has not adorned.

Notwithstanding the adverse circumstances in which she has been placed, Italy has thus taken no insignificant part in the advancement of science. I may, at the close of a work of which so large a portion has been devoted to the relation of her influences, political and religious, on the rest of Europe, be perhaps excused the expression of a hope that the day is approaching in which she will, with Rome as her capital, take that place in the modern system to which she is entitled. The course of centuries has proved that her ecclesiastical relation with foreign countries is incompatible with her national life. It is that, and that alone, which has been the cause of all her ills. She has asserted a jurisdiction in every other government; the price she has paid is her own unity. The first, the all-important step in her restitution is the reduction of the papacy to a purely religious element. Her great bishop must no longer be an earthly prince. Rome, in her outcry for the preservation of her temporal possessions, forgets that Christian Europe has made a far greater sacrifice. It has yielded Bethlehem, Gethsemane, Calvary, the Sepulchre, the Mount of the Ascension. That is a sacrifice to which the surrender of the fictitious donations of barbarian kings is not to be compared.

CHAPTER XXVI.

CONCLUSION.—THE FUTURE OF EUROPE.

Summary of the Argument presented in this Book respecting the mental Progress of Europe. Intellectual Development is the Object of individual Life.—It is also the Result of social Progress.

Nations arriving at Maturity instinctively attempt their own intellectual Organization.—Example of the Manner in which this has been done in China.—Its Imperfection.—What it has accomplished.

The Organization of public Intellect is the End to which European Civilization is tending.

A PHILOSOPHICAL principle becomes valuable if it can be used as a guide in the practical purposes of life.

The object of this book is to impress upon its reader a conviction that civilization does not proceed in an arbitrary manner or by chance, but that it passes through a determinate succession of stages, and is a development according to law.

For this purpose, we considered the relations between individual and social life, and showed that they are physiologically inseparable from one another, and that the course of communities bears an unmistakable resemblance to the progress of an individual, and that man is the archetype or exemplar of society.

We then examined the intellectual history of Greece—a nation offering the best and most complete illustration of the life of humanity. From the beginnings of its mythology in old Indian legends and of its philosophy in Ionia, we saw that it passed through phases like those of the individual to its decrepitude and death in Alexandria.

Then, addressing ourselves to the history of Europe, we found that, if suitably divided into groups of ages, these groups, compared with each other in chronological succession, present a striking resemblance to the successive phases of Greek life, and therefore to that which Greek life resembles—that is to say, individual life.

For the sake of convenience in these descriptions we have assumed arbitrary epochs, answering to the periods from infancy to maturity. History justifies the assumption of such periods. There is a well-marked difference between the aspect of Europe during its savage and mythologic ages; its changing, and growing, and doubting condition during the Roman republic and the Cæsars; its submissive contentment under the Byzantine and Italian control; the assertion of its manhood, and right of thought, and freedom of action which char-

General summary of the work.

Individual and social life have been considered;

and the intellectual history of Greece;

and the history of Europe.

The contrasts its ages display.

acterize its present state—a state adorned by great discoveries in science, great inventions in art, additions to the comforts of life, improvements in locomotion, and the communication of intelligence. Science, capital, and machinery conjoined are producing industrial miracles. Colossal projects are undertaken and executed, and the whole globe is literally made the theatre of action of every individual.

Nations, like individuals, are born, proceed through a predestined growth, and die. One comes to its end at an early period and in an untimely way; another, not until it has gained maturity. One is cut off by feebleness in its infancy, another is destroyed by civil disease, another commits political suicide, another lingers in old age. But for every one there is an orderly way of progress to its final term, whatever that term may be.

Now, when we look at the successive phases of individual life, what is it that we find to be their chief characteristic? Intellectual advancement. And we consider maturity to be reached when intellect is at its maximum. The earlier stages are preparatory; they are wholly subordinate to this.

If the anatomist is asked how the human form advances to its highest perfection, he at once disregards all the inferior organs of which it is composed, and answers that it is through provisions in its nervous structure for intellectual improvement; that in succession it passes through stages analogous to those observed in other animals in the ascending scale, but in the end it leaves them far behind, reaching a point to which they never attain. The rise in organic development measures intellectual dignity.

In like manner, the physiologist, considering the vast series of animals now inhabiting the earth with us, ranks them in the order of their intelligence. He shows that their nervous mechanism unfolds itself upon the same plan as that of man, and that, as its advancement in this uniform and predetermined direction is greater, so is the position attained to higher.

The geologist declares that these conclusions hold good in the history of the earth, and that there has been an orderly improvement in intellectual power of the beings that have inhabited it successively. It is manifested by their nervous systems. He affirms that the cycle of transformation through which every man must pass is a miniature representation of the progress of life on the planet. The intention in both cases is the same.

The sciences, therefore, join with history in affirming that the great aim of nature is intellectual improvement. They proclaim that the successive stages of every individual, from its earliest rudiment to maturity—the numberless organic beings now living contemporaneously with us, and constituting the animal series—the or-

derly appearance of that grand succession which, in the slow lapse of time, has emerged—all these three great lines of the manifestation of life furnish not only evidences, but also proofs of the dominion of law. In all those three lines the general principle is to differentiate instinct from automatism, and then to differentiate intelligence from instinct. In man himself the three distinct modes of life occur in an epochal order through childhood to the most perfect state. And this holding good for the individual, since it is physiologically impossible to separate him from the race, what holds good for the one must also hold good for the other. Hence man is truly the archetype of society. His development is the model of social progress.

What, then, is the conclusion inculcated by these doctrines as regards the social progress of great communities? It is that all political institutions—imperceptibly or visibly, spontaneously or purposely—should tend to the improvement and organization of national intellect.

The object of social development.

The expectation of life in a community, as in an individual, increases in proportion as the artificial condition or laws under which it is living agree with the natural tendency. Existence may be maintained under very adverse circumstances for a season; but, for stability, and duration, and prosperity, there must be a correspondence between the artificial conditions and the natural tendency.

Europe is now entering on its mature phase of life. Each of its nations will attempt its own intellectual organization, and will accomplish it more or less perfectly, as certainly as that bees build combs and fill them with honey. The excellence of the result will altogether turn on the suitability and perfection of the means.

Application of these principles to Europe.

There are historical illustrations which throw light upon the working of these principles. Thus, centuries ago, China entered on her Age of Reason, and instinctively commenced the operation of mental organization. What is it that has given to her her wonderful longevity? What is it that insures the well-being, the prosperity of a population of three hundred and sixty millions—more than one third of the human race—on a surface not by any means as large as Europe? Not geographical position; for, though the country may in former ages have been safe on the East by reason of the sea, it has been invaded and conquered from the West. Not a docility, want of spirit, or submissiveness of the people, for there have been bloody insurrections. The Chinese empire extends through twenty degrees of latitude; the mean annual temperature of its northern provinces differs from that of the southern by twenty-five Fahrenheit degrees. Hence, with a wonderful variety in its vegetation, there must be great differences in the types of men inhabiting it. But the principle that lies at the basis of its political system has confronted successfully all these human varieties, and has outlived all revolutions.

Example offered by China.

The organization of the national intellect is that principle. A broad foundation is laid in universal education. It is intended that every Chinese shall know how to read and write. The special plan then adopted is that of competitive examinations. The way to public advancement is open to all. Merit, real or supposed, is the only passport to office. Its degree determines exclusively social rank. The government is organized on mental qualifications. The imperial constitution is imitated in those of the provinces. Once in three years public examinations are held in each district or county, with a view of ascertaining those who are fit for office. The bachelors, or those who are successful, are triennially sent for renewed examination in the provincial capital before two examiners deputed from the general board of public education. The licentiates thus sifted out now offer themselves for final examination before the imperial board at Pekin. Suitable candidates for vacant posts are thus selected. There is no one who is not liable to such an inquisition. When vacancies occur they are filled from the list of approved men, who are gradually elevated to the highest honors.

It is not because the talented, who, when disappointed, constitute in other countries the most dangerous of all classes, are here provided for, that stability of institutions has been attained, but because the political system approaches to an agreement with that physiological condition which guides all social development. The intention is to give a dominating control to intellect.

The method through which that result is aimed at is imperfect, and, consequently, an absolute coincidence between the system and the tendency is not attained, but the stability secured by their approximation is very striking. The method itself is the issue of political forms through which the nation for ages has been passing. Their insufficiency and imperfections are incorporated with and reappear in it.

To the practical eye of Europe a political system thus founded on a literary basis appears to be an absurdity. But we must look with respect on any thing that one third of mankind have concluded it best to do, especially since they have consistently adhered to their determination for several thousand years. Forgetting that herein they satisfy an instinct of humanity which every nation, if it lives long enough, must feel, Europe often asserts that it is the competitive system which has brought the Chinese to their present state, and made them a people without any sense of patriotism or honor, without any faith or vigor. These are the results, not of their system, but of old age. There are octogenarians among us as morose, selfish, and conceited as China.

The want of a clear understanding of our relative position vitiates all our dealing with it. The Chinese has heard of our

discordant opinions, of our intolerance toward those who differ in ideas from us, of our worship of wealth, and the honor we pay to birth; he has heard that we sometimes commit political power to men who are so little above the animals that they can neither read nor write; that we hold military success in esteem, and regard the profession of arms as the only suitable occupation for a gentleman. It is so long since his ancestors thought and acted in that manner that he justifies himself in regarding us as having scarcely yet emerged from the barbarian stage. On our side, we cherish the delusion that we shall, by precept or by force, convert him to our modes of thought, religious or political, and that we can infuse into his stagnating veins a portion of our enterprise.

Relative position of Europe and China.

A reliable account of the present condition of China would be a valuable gift to philosophy, and also to statesmanship. On a former page I have remarked (p. 23) that it demands the highest policy to govern populations living in great differences of latitude. Yet China has not only controlled her climatic strands of people, she has even made them, if not homogeneous, yet so fitted to each other that they all think and labor alike. Europe is inevitably hastening to become what China is. In her we may see what we shall be like when we are old.

What China has really accomplished.

A great community, aiming to govern itself by intellect rather than by coercion, is a spectacle worthy of admiration, even though the mode by which it endeavors to accomplish its object is plainly inadequate. Brute force holds communities together as an iron nail binds pieces of wood by the compression it makes—a compression depending on the force with which it has been hammered in. It also holds more tenaciously if a little rusted with age. But intelligence binds like a screw. The things it has to unite must be carefully adjusted to its thread. It must be gently turned, not driven, and so it retains the consenting parts firmly together.

Difference in government by force and intelligence.

Notwithstanding the imperfections of a system founded on such a faulty basis, that great community has accomplished what many consider to be the end of statesmanship. I have already (p. 426) quoted the remark of Machiavelli that, "as to governments, their form is of very little moment, though half-educated people think otherwise. The great end of statesmanship should be permanence, which is worth every thing else, being far more valuable than freedom." But permanence is only, in an apparent sense, the object of good statesmanship; progression, in accordance with the natural tendency, is the real one. The successive steps of such a progression follow one another so imperceptibly that there is a delusive appearance of permanence. Man is so constituted that he is never aware of continuous motion. Abrupt variations alone impress his attention.

Forms of government, therefore, are of moment, though not in the manner commonly supposed. Their value increases in proportion as they permit or encourage the natural tendency for development to be satisfied.

While Asia has thus furnished an example of the effects of a national organization of intellect, Europe, on a smaller scale, has presented an illustration of the same kind. The papal system opened, in its special circumstances, a way for talent. It maintained an intellectual organization for those who were within its pale, irrespective of wealth or birth. It was no objection that the greatest churchman frequently came from the lowest walks of life. And that organization sustained it in spite of the opposition of external circumstances for several centuries after its supernatural and ostensible basis had completely decayed away.

Whatever may be the facts under which, in the different countries of Europe, such an organization takes place, or the political forms guiding it, the basis it must rest upon is universal, and, if necessary, compulsory education. In the more enlightened places the movement has already nearly reached that point. Already it is an accepted doctrine that the state has rights in a child as well as its parent, and that it may insist on education; conversely also, that every child has a claim upon the government for good instruction. After providing in the most liberal manner for that, free countries have but one thing more to do for the accomplishment of the rest.

That one thing is to secure intellectual freedom as completely as the rights of property and personal liberty have been already secured. Philosophical opinions and scientific discoveries are entitled to be judged of by their truth, not by their relation to existing interests. The motion of the earth round the sun, the antiquity of the globe, the origin of species, are doctrines which have had to force their way in the manner described in this book, not against philosophical opposition, but opposition of a totally different nature. And yet the interests which resisted them so strenuously have received no damage from their establishment beyond that consequent on the discredit of having so resisted them.

There is no literary crime greater than that of exciting a social, and especially a theological odium against ideas that are purely scientific, none against which the disapproval of every educated man ought to be more strongly expressed. The republic of letters owes it to its own dignity to tolerate no longer offenses of that kind.

To such an organization of their national intellect, and to giving it a political control, the countries of Europe are thus rapidly advancing. They are hastening to satisfy their instinctive tendency in which they will embody their intentions.

A similar example in the case of Italy.

Approach of Europe to universal education.

Necessity of intellectual freedom.

The future course of Europe. V.

must, of course, depend to a great degree on the political forms under which they have passed their lives, modified by that approach to homogeneity which arises from increased intercommunication. The canal system, so wonderfully developed in China, exerted no little influence in that respect—an influence, however, not to be compared with that which must be the result of the railway system of Europe.

In an all-important particular the prospect of Europe is bright. China is passing through the last stage of civil life in the cheerless-
ness of Buddhism; Europe approaches it through Christianity. Universal benevolence can not fail to yield a better fruit than un-social pride. There is a fairer hope for nations animated by a sincere religious sentiment, who, whatever their political history may have been, have always agreed in this, that they were devout, than for a people who dedicate themselves to a selfish pursuit of material advantages, who have lost all belief in a future, and are living without any God.

*Its hopefulness
compared with
that of China.*

I have now come to the end of a work which has occupied me for many years, and which I submit, with many misgivings as to its execution, to the indulgent consideration of the public. These pages will not have been written in vain if the facts they present impress the reader as they have impressed the author with a conviction that the civilization of Europe has not taken place fortuitously, but in a definite manner, and under the control of natural law; that the procession of nations does not move forward like a dream, without reason or order, but that there is a predetermined, a solemn march, in which all must join, ever moving, ever resistlessly advancing, encountering and enduring an inevitable succession of events; that individual life and its advancement through successive stages is the model of social life and its secular variations.

I have asserted the control of natural law in the shaping of human affairs—a control not inconsistent with free-will any more than the unavoidable passage of an individual as he advances to maturity and declines in old age is inconsistent with his voluntary actions; that higher law limits our movements to a certain direction, and guides them in a certain way. As the Stoics of old used to say, an acorn may lie torpid in the ground, unable to exert its living force, until it receives warmth, and moisture, and other things needful for its germination; when it grows, it may put forth one bud here and another bud there; the wind may bend one branch, the frost blight another; the innate vitality of the tree may struggle against adverse conditions or luxuriate in those that are congenial; but, whatever the circumstances may be, there is an overruling power forever constraining and modeling it. The acorn can only produce an oak.

The application of this principle to human societies is completely established by a scientific study of their history; and the more extensive and profound that study, the better shall we be able to distinguish the invariable law in the midst of the varying events. But that once thoroughly appreciated, we have gained a philosophical guide for the interpretation of the past acts of nations, and a prophetic monitor of their future, so far as prophecy is possible in human affairs.

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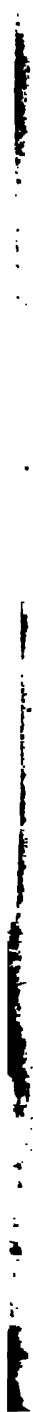
X.

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THE END.



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